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THE FUTURE OF RUBBER IN THE WEST INDIES.

THE Eighth Annual Agricultural Conference of the West Indies, held in Trinidad during the last week of January, was interesting from any standpoint, but particularly because of the evidence that rubber culture is at last receiving serious consideration. The possibilities of rubber planting in those islands were so clearly set forth in an address delivered at that congress by Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, that it seems not improper to reproduce it here. He was elected an honorary member of the conference, and he spoke as follows:

Logically rubber planting should have had its beginnings, growth and success in the vast fertile reaches that border the Amazon river. Brazil, however, did not embrace its opportunity and it passed. This rubber mantle (or shall we say mackintosh?) then fell upon Dutch and British Guiana, Trinidad, Dominica and Honduras. Little was done and their opportunity passed. In the Middle East, however, remarkable success was attained.

Some one has said that "Opportunity knocks once and only once at a man's door." I have forgotten who said it and should be glad to forget the saying, for it is grotesquely untrue. Particularly do I believe it to be false as regards the planting of *Hevea* rubber in this part of the world.

The West Indian would-be rubber planter fears that he cannot compete with the planter in Ceylon and the Malay States. That, however, is not his problem and will not be for years to come. The question is, can he compete with wild Pará rubber from the Amazon?

To be sure the future success or failure depends upon the law of supply and demand; or—as a better arrangement—of demand and supply. As to the former the manufacturers of the world demanded last year some two hundred million pounds of rubber and allied gums. The question is, will they continue to need as much, or more? Without claiming to be a prophet I believe that twice that amount will ere long be needed. Every industry, profession, and art uses rubber in constantly increasing quantities. As the United States consumes something like half of the world's supply, and as it is a country you must frequently pass on your way to Canada, you will pardon me for modestly alluding to it. Our most spectacular rubber-using industry there today is the manufacture of motor tires. We are adding to motor cars already in commission something like 200,000 a year, which means for initial equipment one million tires, counting one spare, and one million inner tubes. With the replacements and equipment for cars already running, there is a conservative estimate of close to four million tires.

The pleasure car, however, is not destined to be always the leader in motordom. The commercial motor truck will eventually far outclass it in number and in rubber consumption. Horse-drawn trucks have been proved so much more expensive and so inefficient as compared with the gasolene truck, that it is only a question of a few years when the former will disappear. This, with the increasing demand for rubber in engineering, clothing, footwear, druggists' and surgeons' sundries, electricity, aviation, and many other lines makes up a vast total.

Now as to the supply. It goes without saying that the bulk of the world's product will eventually come from plantations. Wicherley, in his recent excellent brochure, warns the British rubber planters against an "awakened Brazil." I am very fond of Brazil and the Brazilians. My journeys to the rubber centers of the Amazon were wonderfully informing and uniformly enjoyable. The Brazilians are awake, but they are tied hand and foot. For the actual needs of the government they are obliged to collect a 23 per cent. ad valorem export tax on every pound of rubber that goes out of the country. Labor is scarce and costly. Provisions, clothing, implements cost many times what they do here in the West Indies. Freights are excessive, and the leaders in commercial activity—English, Germans, Americans, Portuguese—are down there for a time only to make money and then to return to their respective homes. There is not capital in Brazil available for rubber planting and outside capital does not care to be taxed, as it would if it embarked in rubber ventures there. Wild rubber from up the Amazon costs anywhere from 2s. or 50 cents to 5s. or $1.25 per pound to produce.

Certainly planters here can produce rubber as cheaply as they can up the Amazon. It is a far cry to the time when *Hevea* plantations in the West Indies will find serious competition from planted rubber in the Middle East. I say this with the hope that there will be no disaster there; but the great areas of planted *Hevea* in the

Middle East are not immortal; they are not even immune; and the wage of laborers, even of Coolies, might advance. You have here in the West Indies, soil, climate and rainfall, excellently adapted for rubber planting. You have the most expert of agricultural advisers. What then is lacking?

PROGRESS OF THE NEW YORK EXPOSITION.

TWO interesting articles bearing on the New York Rubber Exposition will be found elsewhere in this issue. One is the very readable paper contributed by Sir Henry A. Blake, president of the two rubber expositions held in London, on "Rubber Expositions as a Trade Stimulus," in which he shows the energizing effect on the whole industry of these trade exhibitions and conferences of rubber men. The other article is an account of the marked progress made by the organizer of the New York exposition, Mr. A. Staines Manders, in arousing the interest of all classes of rubber men on the other side of the water in this first American rubber show. Mr. Manders was the organizer of the two London rubber exhibitions, held in 1908 and 1911, and in giving a forecast of the exposition, to be held in the Grand Central Palace next fall, he speaks not at a venture, but from a full experience. He believes the New York enterprise will surpass in distinction and popular success both of its London predecessors.

Announcement is also made in this issue of the offer of substantial prizes—the first prize being $5,000, the second $1,500, and the third $1,000—by the London 1914 Rubber Exhibition to inventors who can suggest the best method of rendering rubber non-slipping for outside use on pavements, roadways and wherever rubber is exposed to heavy traffic. The conditions under which these prizes are offered will be made public during the New York Exposition.

LOWER PRICES FOR RUBBER SHOES.

THE rubber footwear companies did the expected, when, on February 1, they reduced their prices. To be sure, the reduction was not as great as the distributing trade—especially the retailer—had hoped; but it went as far as those familiar with all the conditions had anticipated. Boots, lumbermen's and arctics, were reduced in price about 9 per cent., sandals, croquets, and "storms" remaining the same. In other words, heavy goods, which are large consumers of rubber, have dropped with the dropping of crude rubber prices; and light goods, where the cost of rubber does not play so important a part, but where the great multiplicity of styles, shapes and sizes, necessitating innumerable lasts, enters largely into the cost, have stayed where they were. The farmer, fisherman, lumberman and miner are the beneficiaries; the town dweller, whose rubber wants, as a rule, do not extend much beyond a pair of light "overs," continues to pay the same.

As the gross value of the annual footwear product of American rubber factories is not far from $80,000,000. and as the heavy lines constitute two-thirds of this total value, the 9 per cent. reduction will amount approximately to $5,000,000; but, with rubber selling at $1.10 and lower, as against $1.45, which was about the average price of the crude rubber that went into the 1911 product, there should be a better margin of profit now than a year ago.

If the manufacturers could have been assured that rubber prices would not again transgress the $1.10 mark, they might have scaled prices down a little more; but that is an assurance no one is in a position to vouchsafe. At present, there seems no reason why crude rubber should show any disposition to climb much above its present price; but who suspected, when Fine Pará was selling at 65c. in February, 1908, that 26 months later it would sell at three dollars?

THE CONSULTING ENGINEER.

A GREAT deal has been heard of late about the "efficiency promoter," the expert who goes into the office of a large corporation, examines the system and the staff, in theory, at least, detects the weak spots and strengthens them, discovers the leakages and stops them, and puts the entire institution on a basis of the greatest efficiency. Some of this "efficiency" work is undoubtedly successful, but much of it is doomed to at least partial failure, because of the impossibility of devising a gage that shall serve adequately and accurately to measure human capacity. No two men are exactly alike or do their work in precisely the same way. The man whose office is the quietest, whose desk is the cleanest and who appears to spend much of his time looking out of the window, may be the man whose mind is driving the entire organiza-

tion; while his next-door neighbor who makes the corridor ring all day long with the echo of his voice and who shakes the building when he walks, may not accomplish a decent day's work in the whole year. It is the personal equation that makes it difficult, if not impossible, for a stranger, however expert in general office economics, to go into an organization and pick out the useful members and weed out the useless.

But in the realm of mechanics the situation is quite different. The efficiency of machines is susceptible of accurate measurement, and in the factory the efficiency expert, more generally known as the consulting engineer, has a proper and useful field for his operations.

The superintendent of a rubber mill in most cases is a man who has arrived at his position through long years of experience in that or in a similar mill. He is a practical man. To that fact his usefulness and fitness for his position are attributable. He knows how to run the mill because he is familiar with every phase of the mill's operation. The mechanical management—that is, the supervision of the machinery of the mill—he usually delegates to a master mechanic, as a rule a practical man who has acquired most of his education in the same way—by years of personal familiarity with those machines.

It is quite possible that these men may be managing the mill better than any other men could—so well perhaps that no outside man could possibly come in and take their place; and yet, an outside man might be able to show them how their efficiency could be materially increased. Both superintendent and master mechanic are likely in a large enterprise to be extremely busy men; they have little time to go out into the world of mechanics in search of the new. They are likely too (it is a human trait) to get more and more confirmed in their own ways —which ways may be good, but not the best. Possibly, once they were the best; but times have changed, and decided improvements may have appeared.

The consulting engineer may not have a quarter of the practical knowledge of the men who are managing the mill, but he has a different sort of knowledge, a wider knowledge. It is his province to traverse the whole field and keep in touch with the latest developments. He is in a position to make a continual comparison of the efficiency of different methods and different devices. He ought to be able to tell, after a careful inspection, if the mechanical equipment of a mill is susceptible of improvement; and if so, how to improve it, where to go for the better equipment, what it will cost, and how much it will save. Therein lies the advantage to the factory superintendent of calling in from time to time the consulting engineer to go over the plant and carefully inspect its machinery.

It is always easy for a manufacturing concern, especially one long established with a reputation gained many years ago, to get into a rut. The consulting engineer, if he is properly equipped for his duties, will get the manufacturer out of his rut. The superintendent and chief machinist who have been in their positions for a long time, may be following traditions much too closely and there may be new conditions that are a vast improvement over these traditions.

It goes without saying that the consulting engineer's usefulness depends quite as much on his scrupulous integrity as on his knowledge, for here is obviously a case where he cannot serve two masters.

PROPOSED CHANGES IN THE CHEMICAL SCHEDULE.

AMERICAN manufacturers are doubly interested as to proposed tariff changes; both as buyers of crude and semi-manufactured materials and as sellers of manufactured products.

The rubber industry will be much interested by the proposed alterations in the chemical schedule, the principal items of which affecting rubber manufacturers are dealt with in another column. The changes are in many cases downward, while in a few instances they represent an advance on present rates.

American manufacturers are importers of crude and semi-manufactured materials to a greater extent than is generally recognized. Out of imports in 1911 aggregating $1,533,067,130 crude material amounted to $503,901,466 and semi-manufactured material to $287,747,637 making a total exceeding 50 per cent. of the aggregate imports. While about two thirds of the materials imported are free of duty, the dutiable portion is sufficiently large to claim the attention and earnest consideration of manufacturers in general, and particularly of the rubber industry.

WHAT BRAZIL WILL DO FOR RUBBER.

OWING to the passage by the Brazilian National Congress, before closing its labors, of the project adopted by the Rubber Congress held at Rio de Janeiro in August last, the new law was approved by

the president on January 5. Its provisions (as summarized in another column) include the free entry of many articles incidental to the production of rubber; a wide field being thus afforded makers in that branch in meeting anticipated demands. While the authority is given the executive to make agreements with three State governments as to the graduated reduction or eventual abolition of the export tax on rubber, a good deal depends on the action of the separate States interested.

In any case, an honest effort seems to have been made for the benefit of the Brazilian rubber industry, and it is to be hoped that the administration of the law will be such as to promote that end. The delegates whose united wisdom evolved the project, will doubtless, each in his own sphere, see that it is fully and impartially carried out.

INCREASED GERMAN DUTIES ON AMERICAN RUBBER SHOES.

OWING to the tariff agreement between Germany and Sweden, of May 8, 1906, having expired on December 1, 1911, the concession upon Swedish rubber shoes, by which the United States likewise profited, ceased on the same date. Since then both Swedish and American rubber shoes have paid the full rate equalling about $11 per 100 pounds, in place of the lower conventional duty of $8.80 per 100 pounds.

The United States tariff agreement with Germany, while precluding discrimination against American goods, does not provide for any privileges which are not shared by one or more other nations.

According to official statistics, the German imports of American rubber shoes since 1905 have been as follows: 1905, $124,250; 1906, $392,500; 1907, $25,250; 1908, $177,750; 1909, $133,750; 1910, $144,000. Owing to the recent action of the German government not having been foreseen, German importers were unable to make prospective arrangements to avoid its effects.

WIRELESS VS. CABLE TELEGRAPHY.

WITH the advent of wireless telegraphy, a new and potent influence has been brought to bear upon modern progress; considerably expanding the facilities of communication afforded by cable telegraphy, although necessitating far more electricity for its operation.

That there is ample room for both systems in their respective fields is shown by a German opinion quoted in another column. Wireless telegraphy can be made as serviceable to the rubber producer as the telephone has become to the American farmer, particularly in such cases as those parts of Brazil where telegraphic communication between points important of themselves, does not pass through intervening traffic-producing centers. Thus Porto Velho uses wireless to communicate with Manáos and thence is in touch through cable with the outside world.

It has been remarked that "the little town, 2,000 miles deep in the Amazon jungle, has been in this respect more up-to-date than any city in the United States or Europe." Whether such a statement is fully justified would be a point of discussion, but in any case the combined working recorded of the wireless and ordinary systems, is of practical interest as demonstrating the scope of Brazilian enterprise in this new field of telegraphy.

WORKING FOR ONE CENT LETTER POSTAGE.

REPRESENTATIVE JOHN W. WEEKS, who delivered the interesting address on American monetary problems at the last dinner of The Rubber Club of America, has introduced into the House of Representatives a bill (which was introduced in the Senate by Senator Burton of Ohio), for one cent letter postage. One paragraph of this bill gives a strong argument for its passage. The paragraph is as follows: "During most of this time (the twenty-nine and a half years since the last reduction on letter postage was voted by Congress, October 1, 1883) the first class mail has produced a revenue vastly in excess of the costs of its service, as an instance of which the revenue for the latest fiscal year ending June 30, 1911, has been over $162,000,000, of which amount $62,000,000 is estimated profit to the department, thus indicating that a considerably lower rate, which would enormously stimulate the growth of this class of mail with a resultant further increase of revenue therefrom, would probably amply compensate the government, particularly bearing in mind that no reduction is contemplated in postage on postal cards."

This bill is the result of the activity of the National One Cent Letter Postage Association, whose president, Charles William Burrows, of Cleveland, was also present with Congressman Weeks at the Rubber Club dinner and delivered on that occasion a notable address on the postal problems of this country.

The West Indian Agricultural Conference.

THE most notable agricultural conference in the history of the West Indies was held in Port of Spain, Trinidad, during the week ending January 30. It was notable not only because of the large attendance—some hundred delegates being present from the other West Indian Islands and British Guiana—but because of the marked interest of those who attended and the importance of the subjects discussed.

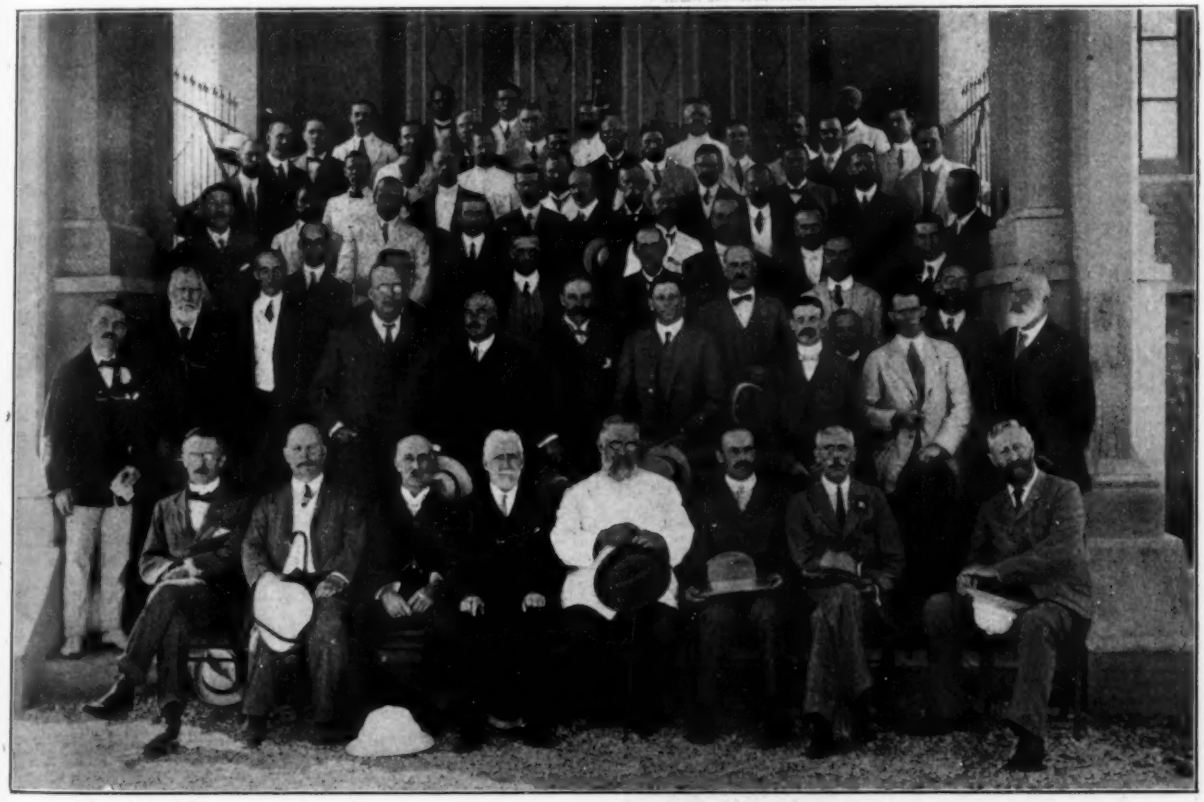
The president of the conference was Dr. Francis Watts, Imperial Commissioner of Agriculture for the West Indies; and the Governor of the Island opened and closed the conference and attended many of its sessions.

While the conference considered sugar, cotton, cocoa and other kindred topics, it was of special importance to those interested in rubber, because of the amount of time allotted to the discussion of this subject, and because of the practical character of the papers read and the addresses made during the rubber session. That part of the president's address which was devoted to the subject of rubber is given below. In addition to this interesting contribution an important paper on Pará rubber cultivation in the East was read by Frank Evans, assistant superintendent and curator of the Royal Botanic Gardens, Trinidad, and another valuable paper on the cultivation of *Castilloa* in Dominica was contributed by Joseph Jones and G. A. Jones. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, who was elected an honorary member of the conference, delivered an address on the future of rubber growing in the West Indies, which will be found in the editorial columns of this issue.

The paper read by Mr. Evans gave a great deal of information of practical value to West Indian rubber planters regarding conditions in the Malay States, showing the cost of bringing an acre of rubber trees into bearing, the cost per pound of the rubber when placed on the market, describing the method of planting the trees, the proper age for tapping, the tapping tools and tapping system which experience has found most advantageous, and giving much other information regarding rubber culture in the East.

The Messrs. Jones contributed a paper of much importance to people interested in the planting of *Castilloa*, the first specimens of which were introduced into Dominica in 1891. The four original trees planted at that time in the botanic gardens are still in a healthy state of growth and constitute the source of all the present cultivation of *Castilloa* in the different islands. They gave a detailed enumeration of the varieties of this rubber tree, described the methods of tapping and gave the results of tapping experiments on trees of various ages. In the opinion of these two experts, the *Hevea Brasiliensis* still remains, after years of experiments with other rubber trees, the only tree that has given general satisfaction under cultivation.

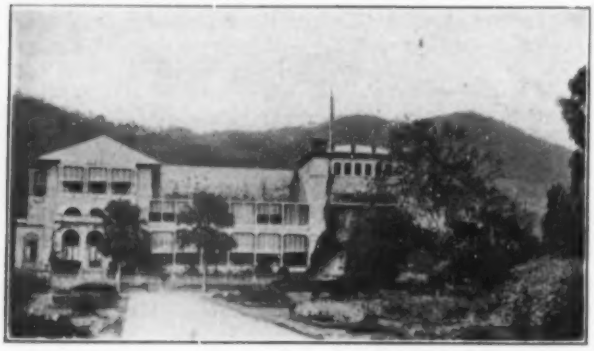
A notable addition to the rubber programme were the lectures by Dr. P. J. S. Cramer, of Dutch Guiana, and Mr. Alleyne Leechman, of British Guiana. The former had just returned from the Middle East and presented some wonderful views of interesting rubber developments in Ceylon, Malay States and Java. Mr. Leechman's views were devoted to *Hevea* and *Sapium* planta-



DELEGATES TO THE AGRICULTURAL CONFERENCE, TRINIDAD, JANUARY, 1912, ON THE STEPS OF THE PRINCE'S BUILDING.

tions in British Guiana. They showed the work done at the various experiment stations and also the methods of extracting and coagulating balata.

A very interesting and informing feature of the Conference was the rubber demonstration at the St. Clair Experiment Station, which is close to the city. The delegates were shown how



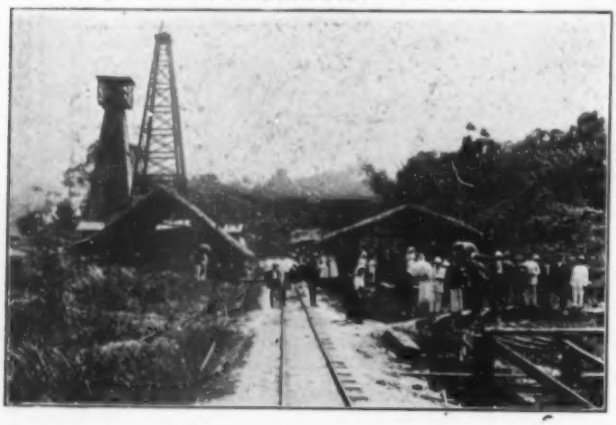
RESIDENCE OF TRINIDAD'S GOVERNOR, PORT OF SPAIN.

to tap Pará rubber trees and how coagulation was effected, together with methods of tapping *Castilloas*. All of the rubber apparatus at the laboratory was on exhibition, including many types of tapping tools, coagulating appliances, apparatus for smoking, et cetera. All of these were explained by A. E. Collens, F. C. S., analyst and chemical demonstrator.

Much of the success of the Conference was due to the remarkable organizing ability of its president, Dr. Francis Watts, the Imperial Commissioner of Agriculture for the West Indies, and to Professor P. Carmody, Director of Agriculture for Trinidad and Tobago, together with their very able and scholarly staff.

The part of the president's address devoted to rubber was as follows:

> Interest in rubber has been steadily maintained in the West Indies during recent years, and considerable progress is being made. As far as observations go, the rubber boom of 1909 appears to have exercised but little disturbing influence on the work in the West Indies. This is perhaps due in no small degree to the steadying influence of the local Departments of Agriculture, which, being in close touch with planters and well informed as to local conditions, tended to discourage wild speculations, to the permanent good of the various colonies.
>
> Work in the West Indies has included chiefly the introduction of rubber plants of various kinds and the extension of the areas under cultivation. It may be observed that there is now a tendency to pay more attention to *Hevea* and less to *Castilloa* than was formerly the case.



THE OIL FIELDS, TRINIDAD.

> Very considerable efforts have already been made by the various Departments of Agriculture to assist in the importation of rubber seeds, principally of *Hevea*. This is shown by the figures, for some of the smaller islands, given in the following table:

Rubber Seeds Imported, 1910.

Dominica	98 200	St. Vincent	10,000
Antigua	2,500	St. Lucia	10,000
Grenada	75,000		

> Much interest has been evoked by the machine invented by Mr. Smith, of Tobago, for the rapid preparation of rubber from *Castilloa* latex. It is anticipated that an opportunity will be afforded to members of the Conference for seeing this machine in operation, and for obtaining the latest information concerning it and its application.
>
> It is interesting to note that British Guiana is exporting rubber to the value of some $7,000 a year, and that Tobago has begun to make commercial shipments.
>
> Reference should be made to the export of balata from British Guiana. This is an old industry in this Colony, and is dependent upon the exploitation of the native forests, the work of collecting being carried on under Government regulations intended to prevent destruction or waste of the forests. The importance and growth of the industry may be judged from the following figures relating to the exports:

1905-6	*value*	$40,311	1908-9	*value*	$98,128
1906-7		50,106	1909-10		95,507
1907-8		76,778	1910-11		139,623

AGRICULTURAL LABORATORY, TRINIDAD.

> The recent International Rubber Exhibition has afforded several West Indian colonies opportunities both for bringing to public notice the facilities that they offer for rubber cultivation, and for gathering much valuable information to guide the efforts of those concerned in the developments that must take place in the West Indian rubber growing. At the Exhibition, British Guiana, Trinidad and Tobago were prominently represented, creating favorable impressions that should materialize in increased activity in rubber growing. The exhibits from the other West Indian colonies—Dominica and St. Lucia—were on a smaller scale.

Trinidad's beautiful capital hospitably opened her doors wide to the visiting scientists; and in the pauses between the sessions arranged luncheons, dinners, drives and excursions in great number. The most notable excursion was that given by "Trinidad's Rockefeller," the Honorable Mr. Cochrane, who chartered the Royal Mail steamship "Balantia" and took a party of 125 to the oil fields. It was an all-day trip and he entertained them most lavishly from dawn until dark.

At the close of the Conference the delegates took part in the great Agricultural Exhibition which was then formally opened by the Governor of Trinidad.

Below is given a list of those who attended the conference and the societies or bodies which they represented:

LIST OF DELEGATES WHO ATTENDED THE CONFERENCE.

Dr. Francis Watts, C.M.G., D.SC., F.I.C., F.C.S., Imperial Commissioner of Agriculture for the West Indies, President.

BRITISH DELEGATES.

A. W. Hill, M.A., F.L.S., Assistant Director and representative of the Royal Botanic Gardens, Kew.

Guy A. K. Marshall, Scientific Secretary and representative of the Committee of Entomological Research.

J. W. McConnel and W. Marsland, representatives of the British Cotton Growing Association.

C. Sandbach Parker and E. R. Davson, representatives of the West India Committee.

JAMAICA.

W. Cradwick, Senior Agricultural Instructor.

Dugald Campbell, representative of the Agricultural Society.

BRITISH GUIANA.

Professor J. B. Harrison, C.M.G., M.A., F.I.C., Director of the Department of Science and Agriculture, Chairman of the Board of Agriculture and Chairman of the Board of Education, and B. Howell Jones, C.M.G., representatives of the Board of Agriculture.

Alleyne Leechman, F.C.S., Science Lecturer; G. E. Bodkin, B.A., Economic Biologist; S. H. Bayley, Superintendent, Onderneeming School Farm, and J. F. Waby, F.L.S., representatives of the Department of Science and Agriculture.

J. J. Nunan, B.A., LL.B., President and representative of the Royal Agricultural and Commercial Society.

B. Howell Jones, C.M.G., representative of the Planters' Association

The Hon. C. G. A. Wyatt, President, and W. Douglas, F.I.C., F.C.S., representatives of the Chamber of Commerce.

TRINIDAD AND TOBAGO.

Professor P. Carmody, F.I.C., F.C.S., Director of Agriculture and Vice-President of the Board of Agriculture.

W. G. Freeman, B.SC., A.R.C.S., F.L.S., Assistant Director of Agriculture.

C. H. Wright, B.A., F.I.C., F.C.S.; H. S. Shrewsbury, F.I.C.; Joseph De Verteuil, F.C.S.; A. E. Collens, F.C.S.; F. Evans, Curator Royal Botanic Gardens, Trinidad; J. Duncan Miller, Esq.; W. E. Broadway, Curator, Botanic Station, Tobago; J. McInroy, Esq.; H. Meaden, Esq.; J. C. Augustus, Esq.

QUEEN'S ROYAL COLLEGE, WHERE RUBBER LECTURES WERE GIVEN.

The Hon. S. Henderson and the Hon. C. de Verteuil, representatives of the Board of Agriculture.

J. Birch Rorer, A.B., M.A., Mycologist.

F. W. Urich, F.E.S., C.M.Z.S., Entomologist.

P. L. Guppy, F.E.S., Assistant Entomologist.

J. H. Collens, V.D., Lieutenant-Colonel., Inspector of Schools.

W. Burslem, M.A., Principal, Queen's Royal College.

Very Rev. Dr. E. A. Crehan, Principal, St. Mary's College.

C. S. Rogers, The Forest Officer.

The Rev. Dr. Morton, Vice-President; H. Warner, James Arbuckle and Dr. A. Fredholm, representatives of the Agricultural Society.

W. Gordon-Gordon and J. H. Smith, representatives of the Chamber of Commerce.

Hugo Hoffman, representative of the Permanent Exhibition Committee.

The Hon. H. L. Thornton and Thomas Thornton, A.R.C.S., representatives of the Tobago Planters' Association.

BARBADOS.

The Right Rev. W. P. Swaby, D.D., Bishop of Barbados; President of the Education Board.

Major J. A. Burdon, C.M.G., Colonial Secretary.

J. R. Bovell, I.S.O., F.L.S., F.C.S., Superintendent of Agriculture.

F. A. C. Collymore, M.C.P., representative of the Chamber of Commerce.

The Hon. Sir F. J. Clarke, K.C.M.G., President; F. C. Trollope, Lieutenant-Colonel; E. A. Robinson, W. D. Shepherd and J. L. Shannon, D.V.M., representatives of the Agricultural Society.

WINDWARD ISLANDS.

G. G. Auchinleck, B. SC., Superintendent of Agriculture, Grenada.

His Honor R. S. Johnstone, M.A., Chief Justice; the Hon. D. S. de Freitas, President of the Society; the Hon. G. S. Seton-Browne, Vice-President; John Barclay, Esq.; W. M. Malins-Smith, Esq., and D. Hedog Jones, B.A. B.S.C., representatives of the Grenada Agricultural and Commercial Society.

QUEEN'S PARK HOTEL, WHERE THE DELEGATES STOPPED.

W. N. Sands, Agricultural Superintendent, St. Vincent.

The Hon. J. G. W. Hazell, Chairman and representative of the St. Vincent Agricultural and Commercial Society.

His Honor, E. J. Cameron, C.M.G., Administrator of St. Lucia.

J. C. Moore, Agricultural Superintendent.

A. J. Brooks, Assistant Agricultural Superintendent, St. Lucia.

Geo. Barnard, representative of the St. Lucia Agricultural Society.

LEEWARD ISLANDS.

The Hon. Edward B. Jarvis, Acting Colonial Secretary, representative of the Colony of the Leeward Islands.

H. A. Tempany, B.SC., F.I.C., F.C.S., Government Chemist and Superintendent of Agriculture.

T. Jackson, Curator, Botanic Station, Antigua.

A. P. Cowley, representative of the Antigua Agricultural and Commercial Society.

Joseph Jones, Curator, Botanic Station, Dominica, representative of the Agricultural and Commercial Society, Dominica.

F. E. Everington, representative of the Dominica Planters' Association.

F. R. Shepherd, Agricultural Superintendent, St. Kitts.

W. H. Mitchell, M.A.

Arthur S. Davis and J. R. Yearwood, representatives of the Agricultural and Commercial Society, St. Kitts.

The Hon. J. S. Hollings, representative of the Agricultural and Commercial Society, Nevis.

W. Robson, Curator of the Botanic Station, Montserrat.

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A. J. Morland, Esq., Montserrat.

W. C. Fishlock, Agricultural Instructor, Virgin Islands.

DUTCH GUIANA.

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VICTORIA INSTITUTE, PORT OF SPAIN, TRINIDAD.

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A. H. Kirby, B.A., and A. G. Howell, Esq., Honorary Secretaries to the Conference.

MOTOR TIRES IN BARBADOS.

By a Traveling Correspondent.

THE Island of Barbados as a centre assembles on its shores South Americans, winter visitors from Europe and America, as well as many from other West Indian Islands, Demerara, Surinam, etc.

There are some 400 odd miles of good hard main roads, and one can always hire carriages or automobiles. The first automobile was imported in 1898. It was a Waltham Orient with the engine on the rear axle. Since then 209 cars have been cleared through the customs. Maxwell, Buick, Regal, Franklin, Ford, Hudson, Locomobile, Overland, Hupp and Brush, are some of the American cars seen. The Humber and Vulcan are the favorite English cars. The American cars, light and moderate in price, seem to be the favorites.

Cars arrive here fitted with various tires: Goodrich, Diamond, Michelin, Ajax, Hartford, Goodyear, Firestone, Fisk, Empire and others. Among English tires the Dunlop seems to be the favorite. A Humber touring car equipped with these tires has covered over 7,000 miles on these roads, and the tires still seem to be in excellent condition. Thirty by 3½ is the average size of tires, although there are some 28-inch as well as some 32-inch and 34-inch. The tires wear out on the tread; very few are rim cut. During wet weather when the coral roads become very slippery chains are used.

Three concerns handle tires: The Bridgetown Garage, the Barbados Garage, and the Fisk Agency. There is a duty of 10 per cent. *ad valorem* on tires. The English manufacturers allow 15 per cent. trade discount and the American only 5 per cent. The American tires cost about $2 more than the English. About $10,000 worth of automobile tires are handled in Barbados every year. The Bridgetown Garage handles about half. The remainder are imported by owners and the agencies.

Old and worn out tires are shipped back to the manufacturers. About 250 inner tubes are used annually, largely Dunlop, Diamond and Michelin (Universal rims). Goodyear no-cut rims are used quite generally; a few of the old solid rims are seen, and some Goodrich Quick Detachables. There are only seven motorcycles on the island. The law requires the registration of all bicycles, and the register at St. Michael shows some 725. There are about 100 more distributed through the other districts of the island.

The Rambler and Pope were among the first bicycles brought in. They were equipped with the G. & J. and Hartford tires. Afterwards the English bicycles dropped in price, and they gradually superseded those of American make. Many Humber and Ridge-Whitworth bicycles are seen, and the Dunlop, Warwick, Liberty, Ridge-Whitworth tires are used. They are supplied by the North-British Rubber Co., Limited.

There is a well equipped tire repair department at the Bridgetown garage. A most comfortable work-shop it is, whose latticed sides insure a comparatively cool and airy interior. There is a steam vulcanizer heated by alcohol, which does good work.

There are over 100 rubber-tired carriages in the island. The solid tires last from three to nine months and generally average about 3,000 miles. The train tracks are most destructive to them, and those without wires are sometimes ripped off and badly cut. Then, too, where the roads are being repaired, the many hard sharp bits of coral cut a tire badly. The light runabouts use a 1-inch tire, and the heavier carriages require a 1½-inch or 1¼-inch tire. About 2,500 feet of the solid Goodyear tire are used yearly on the island. The Hazel-Grove rubber tire made in England is also used to some extent, about 700 feet a year. The duty on both the English and American solid tiring is 10 per cent.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

BRAZILIAN RUBBER LEGISLATION.

THROUGH the approval by the Brazilian National Congress before closing its session at the end of December, the project formulated in August last by the Rubber Congress held at Rio de Janeiro became law, with certain modifications; receiving the Presidential assent on January 5. Such a result was due to the adoption of more reasonable tactics on the part of the opposition than had been recently displayed, and which, it had been anticipated, would frustrate the efforts of the government to obtain a decision before the Brazilian Congress was dissolved.

In the issue of October, 1911 (page 7), THE INDIA RUBBER WORLD published a synopsis of the project as it had then been formulated by the Commission selected for that purpose from the ranks of the delegates.

As now passed by the National Congress the decrees may be thus summarized:

1. Exemption from import duties of appliances for rubber production; subject to investigation by customs authorities.
2. Money prizes of stated amounts for entirely new plantations. (Original draft had included the graduation of such prizes according to outlay during year before the productive period).
3. Establishment of experimental stations at certain points.
4. Award of prizes to the first refining plants reducing the various qualities to a uniform type for export, and for the establishment of the first rubber goods factory in certain States. (Original project Sections 5 and 6.)
5. Construction of three hospitals and organization of a suitable staff for their service. (Original Section 7.)
6. Construction of new railroads. (Original Section 8.)
7. Exemption from duty of products intended to promote river navigation.
8. Establishment of coal depots at Amazon points.
9. Measures tending to reduce cost of provisions.
10. Adjustment of land titles. (Original Section 9.)
11. Holding of triennial expositions. (Original Section 10.)
12. Restriction to States of Pará, Amazonas and Matto Grosso of the gradual reduction of rubber export duties by 50 per cent., provided by Section 4 of the original project.
13. Authorization of special regulations as to the Territory of Acre.
14. Provision of necessary funds.
15. Contrary enactments abolished.

The principal features of the original project seem to have been retained, with the exception of the change in clause 4 of basis of awarding prizes and the limitations by clause 12 to certain States of the graduated reduction in export duty. The Executive authority is authorized to enter into an agreement with the States of Pará, Amazonas and Malto Grosso, with the view of a gradual reduction of 10 per cent. (up to the maximum reduction of 50 per cent.) in the present rate of export duties imposed by those States upon the rubber produced within their territories; and exemption from all tax of such rubber within the term of 25 years from date of this law. After the conclusion of such agreements, negotiations will be permissible as to rubber from the Federal District of Acre.

JOHN C. WILLIS, M.A., SC.D., formerly director of the Royal Botanic Gardens, Ceylon, and a well known lecturer and writer on various phases of rubber planting, has been appointed director of the Botanic Gardens at Rio de Janeiro and will sail from England April 4, to assume the duties of his new position.

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

Rubber Expositions as a Trade Stimulus.

*By Sir Henry A. Blake, G.C.M.G.**

TWO stalwart young London judges playing "pull devil pull baker," with various sheets of rubber gave me my first introduction to the practical testing of sheet and biscuit rubber in the prize competition at the first rubber exhibition held in the beautiful Botanic Gardens at Peradeniya in Ceylon. The rubber was being tested for tensile strength, tenuity, and resilience. This was in the year 1906.

In 1873 the first seeds of the *Hevea Brasiliensis* were brought to the Royal Botanic Gardens at Kew by Mr. Wickham, whose success in obtaining them and sending them to England, showed great readiness and resource. The seeds were intended for India, but as there was at the time a scare against the possible introduction of plant diseases into India that Government refused to receive them, and they were sent to Ceylon instead, where a plantation was made at Heneratgoda Botanic Gardens. From those trees, now large forest trees, came the seeds that have spread the cultivation of *Hevea Brasiliensis* from Ceylon to Java and Papua in the east.

SIR HENRY ARTHUR BLAKE, G.C.M.G.

In Ceylon, the young trees were planted as shade trees for tea, and in some cases as avenues along the roadsides. For many years nobody seemed to realize the value of the latex. At length when cutting some shade trees, an intelligent observer pointed out that this was the basis of rubber for which high prices were being obtained. At once owners of quantities of these shade trees found themselves comparatively rich men. Prices continued to rise, and in 1905, 6 and 7 feverish anxiety was shown to take up and plant lands suitable for rubber. In 1910, the price of rubber rose to 12*s.* per pound, and the shares of producing companies mounted with amazing rapidity. Immense fortunes were made by some, and rubber properties were considered inexhaustible sources of wealth.

At the close of 1905, it was proposed that an exhibition of everything connected with the planting and preparation of rubber should be held. The extraction of the latex and its preparation were so far very simple. The latex was poured into soup plates, where it coagulated. Next day it was rolled out by a bottle to about one-quarter of an inch thick, washed and placed in a drying room. When dried it was ready for the market.

The exhibition was opened in September, 1906, and here, for the first time, was brought together all that was known of the various processes connected with plantation rubber. It may be mentioned that the gold medal for the best biscuits was won by Ceara rubber biscuits grown at an elevation of 3,500 feet. During this exhibition, papers were read and discussed that dealt with every phase of the important industry and a mass of information was recorded that was of importance for all rubber growers.

This first exhibition showed how much remained to be investigated, not alone in the propagation of the trees, and in the chemistry of the latex, but also in the effects upon the trees, of the different modes of tapping, and the means to be taken for combating the pests of various kinds that began to present themselves.

Hundreds of thousands of acres were taken up in India, Ceylon, Malaya and Java for rubber plantations; Africa was exploited east and west; Central America was examined with a view of cultivating Ceara and other rubber trees, and South America, the original home of the *Hevea Brasiliensis*, was being searched from the Atlantic to the Pacific for locations likely to attract investors; when it was proposed that an exhibition should be held in London, in which all countries interested in this now colossal business should join in mutual inquiry and friendly competition. The industry had advanced with extraordinary rapidity, and there seemed to be no bounds to its expansion in Europe and America.

The proposal received an enthusiastic response from all parts of the world. The exhibition was held at Oiympia in London, from the 14th to the 26th of September, 1908, and contained exhibits of all existing forms of rubber, while practical planters and scientific experts from east and west vied with each other in friendly interchange of opinions, and valuable discussions on the papers read before the International Conference during the twelve days of the exhibition.

The result was considered very satisfactory. The exhibition had brought together producers and manufacturers from the East, from Europe and the United States of America, and brought under the notice of investors, possibilities hitherto not appreciated. While the rapid growth of demand assuaged the fear of over production. The collocation of the papers submitted to this conference and edited by Dr. Spence, PH.D., F.I.C., shows within its 300 pages how wide a field was covered by the discussions, and how valuable were the facts and experiments thus placed at the disposal of the conference. At the close of the exhibition, it was felt that these International Exhibitions and Conferences of men engaged in the great industry so rapidly expanding into a position in the first rank of the world's commerce, ought to be continued, where fellow workers of every nation might draw from a common store of knowledge, experience useful to all, and help each other forward in their efforts to increase the supply of Nature's products for the benefit of mankind.

It was decided that an exhibition on the same line should take place in 1911, and it was felt especially that the manufacturers should be invited to participate, in the hope that fuller indication might be given of the particular form in which plantation rubber should be presented to the market. Much had been done since the first Ceylon exhibition, but in the range of caoutchouc producing plants there was much still to be learned, as also in the processes of securing the latex at least cost to the health of the trees, and in its preparation as crepe, blanket, sheet or block for the market. Vulcanization is also a vital process on which the last word has not been said; while the consumer is invited to contemplate new uses that may add

*Ex-Governor of Ceylon, Hong Kong and other British Colonies; President of the 1908 and 1911 International Rubber and Allied Trades Exhibitions, London; and President of the European Committee of the Coming New York Rubber Exposition.

materially to his comfort and possibly decrease his expenditure in the future.

This third exhibition was held at the Agricultural Hall in London, from June 24 to July 14, and was again a brilliant success. There was a considerable increase in the number of British and foreign manufacturers, and new sources of supply were shown. Brazil retained her pre-eminence, not alone as a source of supply, but as furnishing a standard of perfection. Great advances have been made in the details connected with the production of plantation rubber, and improved machinery was much in evidence. There was also a demonstration of a new process for the production of synthetic rubber, that may yet find a place in the rubber market.

Once more the salutary principle was adopted of making the exhibition the opportunity for holding an international conference, the outcome of which may be seen in the admirable souvenir of the proceedings since published. Prizes were given by THE INDIA RUBBER WORLD, of New York, for the best system of extracting latex from the *Castilloa Elastica;* by the "India Rubber Journal" of London, for the best sample of plantation rubber; by "Grenier's Rubber News," Federated Malay States, for the best sample from Malay States; by the "Association des Planteurs de Caoutchouc," for best sample from Dutch East Indies, and by the West India Committee for best samples of rubber, and balata from the West Indies.

During the exhibition it became known that an international exhibition on somewhat similar lines was projected for New York, and now that the project has materialized, further progress will doubtless be made in the solution of many problems with which rubber planters and manufacturers have still to deal. Great as is the production in sight, the horizon of demand is ever widening. One hundred and forty years ago, its only known practical use was as an eraser of pencil marks. Today it ministers to the wants of the infant in his cradle as well as to the comfort of the aged, while in one form or another it enters with frequency into the countless demands of civilization.

Among the exhibits at the Agricultural Hall, there was one that promised important developments. This was a section of rubber prepared for road work, but not yet fulfilling all the necessary conditions that would enable it to compete with the quarry and the forest for the preparation of road surfaces for heavy traffic. That this difficulty will be overcome, there can be no doubt, and when it has been, any possible doubt of a limitless demand will vanish like a moving mist. Silent streets with the cessation of the turmoil and roar of traffic, would in relief of brain fag to the busy worker, be the most potent factor for health and strength ever offered to the business men and women of great cities, while imperviousness to water would obliterate dust and mud, carry off equally heavy rains or melting snows, and save the endless labor on frost upheavals every spring that try the equanimity of dwellers in New York.

There is a giant in the path whose name is "skid," but Jack the Giant Killer will emerge from some busy inventive brain, and demolish the skid by a non-slip grip surface that will withstand wear and tear and secure safety in all weathers for horse or motor. From which side of the Atlantic will he emerge?

There's the rub!

SEVENTY-FIVE HUNDRED DOLLARS FOR RUBBER INVENTORS.

AT the New York Rubber Exposition, which will open in September next, the conditions will be published in reference to prizes to the value of £1,500 to be offered by the London 1914 Rubber Exposition. This amount is to be divided into three prizes and is to go to the inventors who can suggest a method of making rubber non-slipping for outside use, as pavement, roadway, and wherever rubber is exposed to all atmospheres and to heavy traffic.

No claim will be made on the inventors by the exposition authorities for any rights or controlling interest in the invention. The prizes will be awarded free of any restriction. Thus while the inventors receive the awards, their patents or inventions will be their own property.

THE NEW YORK RUBBER EXPOSITION.

A. Staines Manders, the organizing manager, has returned to New York after his tour of many countries in the interest of the rubber exposition to be held in New York next September. An interview which a representative of THE INDIA RUBBER WORLD had with Mr. Manders shows that very rapid progress has been made in the organization, and that success is already assured. In answer to questions as to the support that has been given to the exposition in the various branches of the industry, he said:

"I may say that Brazil, Peru, Mexico, Trinidad, British Guiana, Jamaica, the Hawaiian Islands, Cochin-China, Equatorial Africa, Occidental Africa, Madagascar, Lower Burmah, Belgium and the Congo, Ceylon, British Malaya, the Republic of Honduras, Manila and Portugal will exhibit, and many other countries are now negotiating for space.

"You are also aware that the Rubber Growers' Association, at the general meeting held at the London Chamber of Commerce this month, decided to give a series of gold medals for the best samples of plantation rubber produced in any of the rubber-growing countries of the world. The general support and promises have been beyond my expectations. I have been meeting with the most spontaneous support from rubber manufacturers and allied trades of America as well as the allied trade firms of England and the Continent.

"Here I have hundreds of letters to reply to that have been waiting my return from manufacturers of this country. It may interest you to know an important announcement will be made which will be of interest to manufacturers. £1,500 is to be offered to the inventor or inventors who can suggest the best method of making rubber non-slipping for roads or for any use to which it may be put in all atmospheres and for all kinds of traffic. The idea is to divide the sum into three prizes. An important point is that the inventor or inventors will have absolute right to the invention, the patent being conveyed free to the successful competitor or competitors."

Mr. Manders expressed the belief that the outcome of the exhibition would be a general expansion of the rubber industry, due specially to the coming together of the leading producers of rubber and the greatest rubber consumers of the world. Mr. Manders maintains that there is no more effective form of advertising than that to be obtained by an exhibitor at an exhibition, in which the formulated character of the exhibits is strictly adhered to, and to which nothing is admitted out of harmony with the industry to which the exhibition is devoted.

Mr. Manders went on to say: "I wish to tender my thanks to the gentlemen who so kindly came forward to support the undertaking by joining the Honorary Advisory Committee—which, I may state, does not entail any liability or responsibility.

"To THE INDIA RUBBER WORLD, the press of America and throughout the world, I am most grateful for the support they have been giving this undertaking, and you may assure the readers of THE INDIA RUBBER WORLD that the exposition will be equal, if not superior, to the one held in London last year, and will be conducted in the same high class manner. If you peruse the list of gentlemen on the committee who are associated with it, not only in America but throughout the world, it will give you some idea of the interest that has been taken in the first rubber exposition to be held in America."

Mr. Manders' address is the New Grand Central Palace, 46th to 47th street and Lexington avenue, New York City.

PLANTATION RUBBER IN GERMAN EAST AFRICA.

IN an interesting booklet, Dr. Eduard Marckwald, of Berlin, has recorded his impressions of the condition and prospects of rubber planting in German East Africa, with the object of pointing out the steps which should and must be adopted for ensuring the profitable operation of the industry in the territory named. He explains, however, that his report is incomplete, as the interruption of his journey from personal reasons prevented him from becoming acquainted with the Southern portion of the country. At the same time, by the courtesy of planters and officials, he was enabled to gather a quantity of information as to the Usambara district, the most important section, as far as rubber is concerned.

Apart from the many phases of the subject possessing general interest, Dr. Marckwald, in dealing with its detailed features, expresses the opinion that the most suitable variety for planting in East Africa is *Manihot Glaziovii*. Rainfall conditions in a large part of the territory do not, in his opinion, allow of *Hevea* being planted. While sufficient rainfall for *Hevea* is recorded in isolated cases, as a general rule it varies considerably from year to year. Attempts to cultivate *Kickxia* and *Castilloa* have proved unsuccessful. While the reason of these failures is purposely not discussed, caution is expressed against the cultivation of the recently much vaunted *Manihot Dichotoma* and *Manihot Piauhiensis*, experiments with which are described as having totally failed, as they grow badly and slowly, giving only small yields of medium grade rubber. The plants are so fragile, that the plantation is liable to destruction by wind storms.

While the question of the best variety for planting is met by the recommendation of *Manihot Glaziovii*, the poor selection of that seed at the disposal of the German plantations has been an obstacle to the carrying out of the advice thus given. Experiments in soils of like character, with trees planted and tapped at the same time and of the same girth, have shown yields very largely differing in quantity. Such a divergence, in Dr. Marckwald's opinion, is exclusively due to the seeds being of high or low quality. Consequently he urges the necessity of paying special attention in future to the choice of seeds, particularly in the laying out of new plantations.

ALTITUDE.

With reference to the opinion expressed by Herr von Lindequist, that *Manihot* cultivation could be better developed at a height of 1,500 to 3,000 feet than at lower altitudes, Dr. Marckwald expresses the view that while this statement may be applicable to many countries (as for instance Ceylon), in the German colonies it is useless to expect satisfactory results at a height exceeding about 2,600 feet.

WHEN AND HOW TO PLANT.

The best time for planting is the lighter rainy season, and not, as hitherto often has been the case, in the period of heavy rains. Planting in the latter time leads to crooked growth, while trees planted in the first-named season grow straight. Planting should be at least on the scale of 16 x 16 feet, or even 20 x 20 feet. Closer planting (though usual in German East Africa) is undesirable, in Dr. Marckwald's opinion. It is of course assumed that the soil is of a suitable character.

TAPPING.

Tapping, it is added, should only be undertaken with trees of suitable character, and which have a bark of sufficient thickness to permit of a deep incision without injury to the wood. This operation should not take place before the third year. At an earlier stage the rubber has not been formed and the bark is so thin that injury results. Dr. Marckwald strongly condemns premature tapping, such as takes place in some cases at the age of eighteen months.

In the course of a planters' meeting at Tanga, he had an opportunity of seeing rubber, said to have been obtained by a new tapping process from trees only 10 months old, the light color of which was urged as a proof of its excellence. Unfortunately for this theory, Dr. Marckwald was able to assert that the product, which was viscous and without nerve, was the worst sample of *Manihot* which had ever come into his hands. He further dissented from the opinion expressed by the inventor that it was good enough to rank as a second-grade quality from young trees, as he considered principal attention should be given to producing a single uniformly first-class article.

From the third to the fourth year *Manihot* trees can be tapped in regular succession throughout the entire year, with the exception of the short period during which they shed their leaves.

A STANDARD EAST AFRICAN QUALITY.

On the general question of rubber production, Dr. Marckwald urges the view that only the production of a high grade pure and uniform article of the first standard of merit, will render it possible for East Africa by means of such a standard to hold its position in the impending keen competition. German East African rubber, it is added, can only attain such recognition by means of a simple and cheap coagulant. The principal difficulty seems to be in the rooted convictions of many planters that their own methods are the best.

One remarkable circumstance in connection with East African plantation yields, is that the results of various plantations show a marked divergence, which may be considered as illustrating what the tapper brings in, rather than what the trees produce.

After reference to the details given of tappings extending over several months, the opinion is expressed that it will probably be found possible to increase the yields by proper irrigation and manuring, the beneficial results of using imported fertilizers being shown in an improved quality of product.

After drying, the rubber is in many East African plantations subjected to a process of smoking, with the view of thus improving the quality. This idea of smoking owes its origin to the Brazilian custom of using the smoke of *Urukuri* nuts or *Massaranduba* wood, rubber smelling of smoke fetching a better price. While this smoke contains certain products of combustion, exercising special effects, the process of smoking as carried out in East Africa has, it is remarked, no influence upon the quality of the rubber. Still, when carefully performed, smoking is harmless and prevents the formation of mildew, which really does not deteriorate the quality, although made use of as a pretext for reducing the price.

In connection with the washing of East African rubber, the opinion is expressed that where the plantation has only weak rolls, with native attendants, in which the rubber loses only a small quantity of dirt, such an operation is useless. Conditions, however, are different where proper washing rolls have been installed, which are tended by careful hands, even without technical experience.

Dr. Marckwald asks whether, nothwithstanding the various objections raised, washing can be regarded as helping the standardization of East African rubber, which seems unattainable today by any other means. He is disposed to answer the question affirmatively, suggesting an agreement between the larger companies (under both German and English direction) for the production of a uniform quality; washing taking place during a provisional term of three or four years. The washed products must be technically absolutely pure and must be constantly supervised by persons of known integrity and impartiality. Manufacturers, it is added, should be able to use East African plantation rubber without having to subject it to another washing.

Other points of interest are likewise touched on by Dr. Marckwald, such as the cost and prospective selling prices of East African *Manihot* rubber. In the above brief summary, however, a few of the many interesting features of Dr. Marckwald's "Travelirg Impressions" have been quoted, with the hope that he may long be heard from on the important subjects so ably treated.

The Story of Funtumia.

WHILE the genus known generally as *Kickxia* (of the order of *Apocynaceae* and the tribe of *Echitideae*) had long been known to botanists as growing in Southern Asia, a species of West African origin was first recorded in 1876 by Bentham and Hooker, being subsequently described in 1879 as *Kickxia Africana*. In 1898, Dr. Preuss discovered in the forests of Kamerun a species of *Kickxia* whose latex produced first-class rubber. This new species was designated by him as *Kickxia elastica*, by which name the tree and its product are still known in Germany.

It was afterwards placed in a separate genus by Dr. Stapf of the Kew Herbarium. Up to 1905 the genus *Kickxia* had included species inhabiting two widely separated areas, Malaya and tropical Africa; but after careful study, Dr. Stapf in that year

MAP OF AFRICA.

came to the conclusion that the two groups have every claim to be considered as two distinct genera. While retaining the name of *Kickxia* for the Malayan group, he proposed for the African species (hitherto referred to *Kickxia*), that of *Funtumia*, derived from "funtum" or "ofruntum," the vernacular name for the rubber-yielding tree of the Gold Coast. He further demonstrated that while various points of external similarity between the two groups had misled botanists, there were differences in their respective characters, as great as those in any two genera in the tribe of *Echitideae*.

This African rubber-yielding tree has been dealt with in a lucid and comprehensive form by Mr. Cuthbert Christy, in his recent work on the subject (1). While the brief review of this book in these columns (2) specified its leading features, the subject has been treated by the author with such thoroughness as to invite more detailed consideration.

(1) The African Rubber Industry and *Funtumia Elastica* (*Kickxia*); by Cuthbert Christy, M.B., C. M. (Edin.), London, 1911.

(2) THE INDIA RUBBER WORLD, August, 1911; p. 416.

DESCRIPTION OF FUNTUMIA ELASTICA.

Funtumia elastica is the current botanical name of the rubber-yielding "funtum," "ofruntum," or "ire" tree of West Africa; previously known as *Kickxia Africana* (as already explained.) It is an evergreen forest tree growing to a height of 80 to 100 or 130 feet, with an average girth, a yard from the ground, of 4 to 8 feet. The tall and tapering character of the trees (the trunks of which are often without branches up to the height of 80 or 100 feet) renders them objects of prominence. With old mature trees the bark is chiefly of a smooth dark green; being almost black at the base when the forest is dense, but a mottled grey in the upper part of the tree, and where it stands in an open space. The branches, few in number, and with scanty foliage, are only at the top of the tree, while the leaves are oblong, varying considerably in shape and size; being normally from 5 to 10½ inches long, and 2 to 4¾ inches wide, with undulating surfaces.

DEVELOPMENT AND RATE OF GROWTH.

After dealing with the questions of flowers and fruits, Mr. Christy next takes up the development of the sapling. The tiny seedling during the first year expends most of its energy in establishing its roots as deeply as possible. During the second long rainy season, a year after germination, the young forest plant grows to a height of 1 or 1½ foot. Shoots appear in the third year, bifurcating annually until the eighth or tenth year, when the young trees are 20 to 30 feet high. As fast as the higher branches appear, the lower ones dwindle, die, and ultimately drop, so that one seldom sees more than two sets of branches (that is, two sets of annual growths) on a forest tree at one time.

Under normal African forest conditions, it is remarked that *Funtumia elastica* is very slow-growing from a planter's point of view, as in all probability is *Hevea* under similar conditions. It is, however, added, that under cultivation the tree grows much more rapidly than in the wild state—nearly three times as fast under favorable circumstances.

The condition of the saplings at various ages is recorded, as below, as the result of the examination of several hundred specimens in young forest in Uganda:

	Height (feet).	Girth (inches).
Fifth year	9.50	3.46
Sixth year	13.43	4.28
Seventh year	17.58	5.91
Eighth year	24.32	7.91
Ninth year	28.57	10.75
Tenth year	30.00	12.93

DISTRIBUTION OF FUNTUMIA.

Funtumia is, generally speaking, confined to that portion of Equatorial Africa bounded by the parallels 10 N. and 10 S., being essentially a West African tree. The dense forests in which it thrives follow the northern shore of the Gulf of Guinea as far as Dahomey, where a detour includes Southern Nigeria. Crossing the center of the continent, and traversing the French and the Belgian Congo, it reaches Uganda, Victoria Nyanza and the Nile with some small outlying points on the east coast, in Zanzibar and Mozambique. The principal countries in which *Funtumia* is relatively abundant are thus: Liberia, Ivory Coast, Gold Coast, Ashanti, Southern Nigeria, Kamerun, French and Belgian Congo and Unganda; being found to a less extent in Northern Nigeria and Angola. Within the area more especially near the equator, the tree is to be found in almost all the large dense evergreen forests. In cases where the forest is hilly, the rubber trees are found in belts at a certain level, generally near

the base of the hills or along low dry ridges running from them. An apparent peculiarity of this species (well marked in Uganda, but less so in western Africa) is its habit of growing in groups, varying from "family parties" to large belts and areas several square miles in extent.

ALTITUDE.

Funtumia elastica, Mr. Christy remarks, thrives best in the moist hot regions of the tropical zone. The altitude of the west African forests in which it grows so luxuriantly is comparatively low, being in Southern Nigeria generally only 300 or 400 feet, or in Kamerun between 300 and 1,500 feet. It is, however, found at higher altitudes—on the Kamerun mountain at over 2,000 feet and in the rubber zone of Angola at 4,000 to 5,000 feet. At the eastern limit of its distribution, in the forests of Uganda, it flourishes at a similar elevation.

CLIMATE.

As the chief factors in determining the climate of a region are rainfall and temperature, it is appropriate to consider them together. Rainfall, in particular, is a very important element in defining the suitability of any given locality for the cultivation of *Funtumia elastica*.

In Sierra Leone, the average rainfall for the four years ending 1908 varied, according to location, from 100 to 165 inches, the temperature ranging from 71 degs. Fahr. to 91 degs. Fahr. During July and August, the two wettest months, it varied from 71 degs. to 84 degs. Fahr. Liberia, which is mostly covered with dense forests, has an exceedingly humid climate for nine months of the year, with an annual rainfall of about 150 inches in the coastal districts. During the short dry season the temperature ranges from 50 degs. Fahr. to 100 degs. Fahr., while at other periods there is little variation night or day from the mean of 75 degs. Fahr. The "Hinterland" has a much lower rainfall than the western part of the country.

The rainfall on the Gold Coast and in Ashanti varies according to the physical configuration of the country, being greatest at Tarkwa (92 inches) and least at Accra (25 inches). In the temperature there is less extensive variation, the average maximum varying from 81 degs. Fahr. to 87 degs. Fahr., and the minimum from 68 degs. Fahr. to 72 degs. Fahr. Southern Nigeria displays a relatively high rainfall, ranging according to

A *Funtumia* NURSERY AT BOTANIC GARDENS, ENTEBBE, UGANDA.

locality from 75 to 133 inches, the variation of temperature recorded for 1908 having been from 69 degs. Fahr. to 94 degs. Fahr. In Northern Nigeria (where, it will be recalled, there is nowhere an abundance of *Funtumia*) the rainfall for 1909 ranged from 44 to 59 inches.

Kamerun displays two distinct climates, that prevailing at Victoria and round about the Kamerun Mountain, and that of the rest of the colony. The rainfall in the former section is very much the heavier of the two. At the typical plantation of Molive, near Victoria, the annual rainfall in the period from

A TAPPING PARTY AND THEIR IMPLEMENTS.

1906 to 1909 ranged from 115 to 140 inches. Debundscha, also near Victoria, at the foot of the mountain, said to be the second wettest place in the world, has a yearly rainfall which often exceeds 400 inches, as much as 4 inches having been known to fall in a single night. The southeastern region of the colony has a relatively lower average rainfall, generally ranging from 52 to 70 inches.

In the root-rubber district of Angola the annual rainfall is only 35 inches, the maximum temperature being 96 degs. Fahr., and the minimum 26 degs. Fahr. Excepting in the more elevated portions, which contain the large forests, having consequently a lower temperature, the climate of Uganda is not dissimilar to that of the Congo and Western Africa. As Mr. Christy remarks, soil and other conditions being favorable, the *Funtumia* tree will probably thrive best in those parts of Equatorial Africa in which the rainfall is about 100 inches per annum, while it should certainly not be less than 50 or 60 inches.

OTHER SPECIES OF FUNTUMIA.

The genus *Funtumia* includes besides *Funtumia elastica* two other species, *Funtumia latifolia* and *Funtumia Africana*, the latices of which contain little or no caoutchouc. Hence preponderating attention is claimed by *Funtumia elastica*, so far as the rubber industry is concerned.

NATURE OF SOILS.

In the Chagwe forests of Uganda the prevailing soil is red and clay-like, *Funtumia elastica* apparently thriving better in that soil than in any other. The close coincidence in the Uganda forests between the limits of the rubber areas and the line of demarcation between the red and the black soil, is very marked, and, in Mr. Christy's opinion, the tree will flourish in almost any red soil, if rainfall and other conditions are favorable.

PROPAGATION OF SEEDS.

Funtumia seeds have been known to retain their vitality as long as five or seven weeks, while in the ordinary course they will germinate in about 28 days after being sown in damp earth. The native practice followed in the communal plantations of Southern Nigeria, of transferring seedlings direct from the seed bed to the clearing, and protecting them from the sun for the first few months by raised grass and rubbish, is quite successful in small areas.

In Mr. Christy's opinion, complete felling, firing, clean-weeding and holing, entail unnecessary expense, presenting the further

disadvantage of destroying the soil humus. The alternative to clearing the ground completely is to cut out the underwood and smaller trees only, leaving the timber standing. He is convinced that *Funtumia* cultivation can be thus successfully carried on, as has more or less been the case in Uganda, this plan being far cheaper than orthodox methods.

ARTIFICIAL PROPAGATION.

This can be effected by cuttings, but, generally speaking, this method is considered to possess no advantage over propagation by seed, as the plants produced have a disposition to branch too freely. Cuttings of medium hard wood, out of the previous season's growth, rooted readily in 100 days, while in Kamerun a period of five weeks was found sufficient. The progress made at the Botanic Gardens, Entebbe, Uganda, is shown by annexed illustration of a *Funtumia* nursery.

GENERAL METHODS OF PLANTING.

Funtumia cannot be successfully grown if interplanted or intermixed with other crops. Instead of an extended spread of foliage and a surface-root system, like *Hevea*, it has a pole-like habit of growth, with a comparatively small spread of foliage and a deep-root system. The importance of close planting is likewise emphasized, wide planting retarding tapping operations. By planting closely in pure plantation form and subsequently thinning, an even height of canopy, and consequently of stem, can be maintained.

NUMBER OF TREES PER ACRE.

Funtumia, it is asserted, can be planted in three or four times the usual number of *Hevea* trees per acre. According to a detailed table, 109 trees can be planted per acre with a distance of 20 feet between each tree, and in rows 20 feet apart, the number of trees or plants then increasing in proportion to the reduction of the distances.

TAPPING WITH THE "*Funtumia* KNIFE," WITH SLINGS AND PORTABLE STAGING.

FUNTUMIA VERSUS HEVEA.

While disclaiming the intention of asserting that *Funtumia* is a better plantation rubber tree than *Hevea*, Mr. Christy expresses the opinion that the indigenous tree is the most suitable for general plantation purposes in tropical Africa. Although he has seen *Hevea* trees in West Africa equal in size to trees of the same age in Ceylon, he remarks that owing to the very small number of *Hevea* trees tapped (mostly in botanical gardens) there is as yet insufficient evidence that they will yield as well as trees in Malaya or Ceylon. In this connection he refers to the difficulties attending tapping operations, owing to the hard and thick bark displayed by *Hevea* in Africa, instead of the smooth and soft type found in the East. There is no comparison between the two, it is added, in the cost of planting and upkeep of estates; among other points in favor of *Funtumia* being that any quantity of the seed is obtainable free, while native supervision is sufficient for the necessary operations.

GROWTH IN THE PLANTATION.

In the open, in full sunlight, with top shade, and in a sufficiently moist climate, *Funtumia* is stated to be a comparatively quick grower, arriving at the producing stage fully as rapidly as *Hevea*. As, however, there are as yet no plantations in Africa, where any large number of trees can be seen growing under the most favorable conditions, it is difficult to say exactly what the dimensions of plantation trees should be at any given age. In a detailed account of the Botanic Gardens at Victoria, Kamerun, Mr. Christy refers to the extensive agricultural experiment station and laboratories at that point, under the guidance of Dr. Hermann Bücher, the Director of Agriculture. There are, he adds, a great many large cacao plantations in the neighborhood of the Kamerun Mountain, on nearly all of which considerable areas are planted with *Funtumia*. Owing to the considerable rainfall in this district *Funtumia* apparently thrives. From his observation of these plantations, Mr. Christy has made the following approximate estimate of the average girth to be expected at different ages in plantation trees grown under favorable conditions: 3 years, 8 inches; 4 years, 12 inches; 5 years, 16 inches; 6 years, 21 inches; 7 years, 26 inches; 8 years, 30 inches; 9 years, 33 inches; 10 years, 36 inches. In this way the average girth was obtained, which has been reached at different ages under varied planting conditions.

TAPPING METHODS AND REQUISITES.

In connection with the subject of tapping, two illustrations are reproduced by the courtesy of the publishers of Mr. Christy's work. One represents tapping with the "*Funtumia* knife," by the aid of slings and portable staging at a communal plantation in Southern Nigeria; while the other depicts a native tapping party with their implements and bags containing rope slings for climbing.

FOREST YIELDS.

Yields from pricker incision tapping have been found by experiments in Uganda during the rainy season, to be far greater than those from excision methods. Incision records show that wild trees of fair size, tapped to a height of 30 feet, will yield ¼ to ½ pound, or even in some cases 1 pound of dry rubber at one tapping. In the absence of similar records for West Africa, it is considered that the trees in that moist, hot climate are doubtless better yielders than those in the upland forests of the Eastern Protectorate.

PLANTATION YIELDS.

In connection with plantation operations, it has been found that with excision tapping, involving loss of tissue and leading to consequent injury, the yields from second and third tappings are much less than from the opening cuts. By incision tapping, on the contrary, the yields from the subsequent tappings are nearly as good as from the opening cuts. It is possible to make two or three tappings in a year, reaching a greater total annual yield than by any other process.

EXPERIMENTS WITH TREES.

Experiments with trees five to ten years old, growing under

favorable conditions, have led to the results shown by following table:

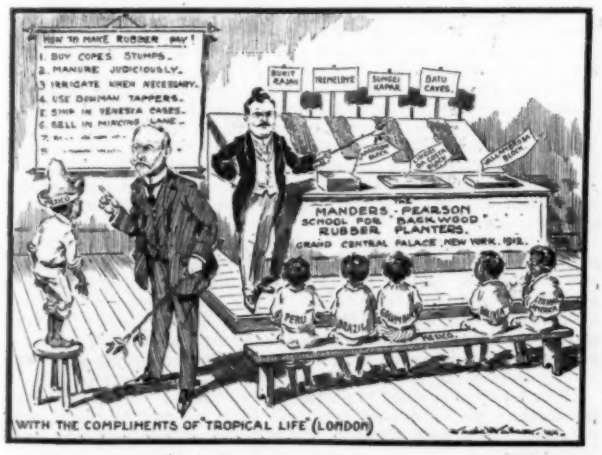
Age of trees in years.....	5	6	7	8	9	10
Girth in inches	16	21	26	30	33	36
Height of tapping in feet.....	9	10	12	16	20	23
Number of tappings per year.....	3	2	2	3	3	3
Annual yield of latex in cubic inches...	13	15	19	34	45	56
Approximate annual yield of dry rubber in ounces	3	4	5	9	12	15

FUTURE OF THE AFRICAN RUBBER INDUSTRY.

While some of the leading features of the cultivation and extraction of *Funtumia* rubber have thus been glanced at, there remains much to be said as to its properties and use in manufacture. As a result, however, of Mr. Christy's able treatment of the question, his investigations lead to a conclusion, which may appropriately be recorded in his own words: "It is difficult to see how extermination of the wild rubber trees in tropical African forests can be prevented even with the best intentions on the part of governments and private owners. The only salvation of the rubber industry in this part of the world seems to lie in the wholesale planting of *Funtumia*, fortunately a very cheap and easy matter, as I have already shown."

THE WAY "TROPICAL LIFE" VIEWS THE SITUATION.

THE cartoon reproduced below is taken from "Tropical Life," printed in London. The International Rubber and Allied Trades Exposition, to be held in the Grand Central Palace, New York, next fall, is represented as a school room, where Mr. A. Staines Manders, the organizer of the exposition, and Mr. Henry C. Pearson, vice-president, are the instructors. This



SCHOOLMASTERS MANDERS AND PEARSON.

scene evidently shows a preparatory class, and Mr. Manders is giving instructions to sundry of the South American States, while Mr. Pearson has Mexico over in a corner giving him a little private tuition. As Mexico failed to put in an appearance at either of the London expositions—held in 1908 and 1911—the brunt of Instructor Pearson's remarks are evidently to the effect that Mexico is no longer to play truant, but must show up at the New York exposition along with the other members of the American rubber family. It is certainly to be hoped that these timely instructions will be heeded.

SOUTH AMERICA AND THE NEW YORK EXPOSITION.

"TROPICAL LIFE," a publication published in London in the interest of tropical development, had an article in a recent issue regarding the South American Republics, a number of which are now celebrating the centenary of their independence, and calling attention to the fact that an excellent feature of that celebration would be a joint exhibit of their rubber producing qualities in the New York exposition, to be held next fall. The paper remarks:

> Would it not be an excellent idea to take advantage of the 1912 International Rubber Exposition in New York as one means of celebrating the united centenaries of the Pan-American Republics, by calling attention to them in a striking manner as rubber-producing centres, both self-planted and indigenous? If this were done, Pan-America, at the very hub of her wheel of commerce, could prove by the varieties of rubbers that are hers to show, the varieties of rubber that she alone is capable of producing indigenously.
>
> It was just such a joint exhibit that we tried so hard to arrange for the London Exhibition, and were only prevented from carrying our intention to a successful issue by extreme pressure of work and the lack of any organized body to support us. In America, however, the situation is very different. Leaving the chief producing centres to include individual exhibits, as Brazil, Bolivia, etc., did in London, a prominent joint display, brought together by the Pan-American Union, in collaboration with the Ministers of Agriculture of the numberless States that go to make up the various Republics, would be a striking advertisement for all time of American rubber. The sample collection thus formed could be housed in a roomy space, exactly as the joint exhibits of Malaya, Ceylon, Southern India, the German colonies, etc., were provided with at Olympia in 1908 and the Agricultural Hall this year, so as to enable producers, shippers, buyers and manufacturers to meet on common ground, examine and criticize the samples, and make suggestions as to how their quality could be improved and rendered more suitable for the work for which they are destined.
>
> Again, the Government representatives, the *estrada* or estate owners, etc., could discuss between themselves or with other experts such knotty questions as the best methods of tapping, coagulating, preparing, and packing the rubber, whether *Hevea*, the *Manihots, Castilloas, Sapiums, Hancornias,* etc., Inter-State and Inter-Republic questions of export duties improved and cheaper river and land transport, planting up the high forests and hinterlands, with provisions for the rubber tappers, and all such matters that tend to reduce the cost of production, and so to enable the South American centres to successfully compete with the East, could be and should be exhaustively discussed if Brazil, Bolivia and Peru are to develop their rubber forests to best advantage. In London, Mr. Staines Manders kindly offered to place a separate room at the disposal of those interested in indigenous rubber, and no doubt he will do the same, if possible, for Pan-American producers in New York. In any case, if the Republics take a space for a joint exhibit worthy of themselves, it should certainly be as large as that secured by Brazil alone in London; such an area, at least, would be needed to allow room for the samples, and for the various representatives to meet together and discuss questions of common interest, either privately or at the general congress. We only hope that this idea will be adopted and such a space will be secured.

PERU TO BE AT THE RUBBER EXPOSITION.

THE Peruvian Government has accepted the invitation to participate in the International Rubber Exhibition to be held September and October. A committee has been appointed to arrange for the preparation of the exhibits. It consists of Eduardo Higginson, Peruvian Consul General at New York; Wilfredo H. Schoff, Honorary Peruvian Consul at Philadelphia; O. Kehrhahn, Peruvian Consul at Baltimore, and G. Alvarez.

ADDITIONAL MEMBERS OF THE EXPOSITION EUROPEAN COMMITTEE.

IN our January issue we gave a list of 76 names of men prominent in various departments of the rubber industry in foreign countries who have signified their willingness to serve on the European Honorary Advisory Committee of the Third International Rubber and Allied Trades Exposition, to be held in the Grand Central Palace, New York, from September 23 to October 3 next.

Below we give a list of 32 names of rubber men who have since accepted invitations to the membership of this committee:

Algernon E. Aspinall, secretary, The West India Committee, London.
G. L. Bailey, Aylesbury & Garland, Perak, F.M.S.
B. Bakker, Bakker & Zoon, Ned. Caoutchouc en Gutta-Percha fabriek, Ridderkerk, Holland.
M. Kelway Bamber, F.I.C., F.C.S., Government Analytical Chemist for Ceylon.
Sir John E. Barlow, Bart., M. P., T. Barlow & Bros., London.
C. E. S. Baxendale, Managing Director, Jugra Estate, Selangor, F.M.S.
F. J. Branthwaite, late Conservator of Forests, Tenasserim Circle, Burma.
Professor P. Carmody, F. I. C., F. C. S., Director of Agriculture, Trinidad.
Leslie C. Coleman, M.A., Ph. D., officer in charge Department of Agriculture, Mysore.
Count J. de Hemptinne, administrator of the Colonial Society, Ghent.
E. de Wildeman, Jardin Botanique, Bruxelles.
Oscar Englebert, president of the Chamber of Rubber Manufactures at Liege.
Frank Evans, Department of Agriculture, Port-of-Spain, Trinidad.
John Gibson, manager, The Tremelbye (Selangor) Rubber Co., Limited.
Henry H. Holland, Managing Director, United States Rubber Co., Ltd., London.
George S. Hudson, manager, Errard Estate, St. Lucia, West Indies.
W. H. Johnson, F. L. S., Director of Agriculture, Ibadan, Southern Nigeria.
Monsieur Le Coispellier, president of the Committee of the Association of Rubber Planters of Indo-China.
L. Lewton-Brain, Director of Agriculture, Kuala Lumpur, F. M. S.
John Lockhart-Anderson, Boustead, Anderson & Co., Mincing Lane, London.
H. S. J. Maas, Consul-General of the Netherlands in London.
C. O. Macadam, Rosehaugh Tea and Rubber Co., Limited, Culloden, Neboda, Ceylon.
W. F. de Bois Maclaren, London.
F. Martin, F. C. S., chemist to the Woolwich Factory of the Western Electric Co., Limited, London.
Hon. H. A. Alford Nicholls, M. D., C. M. G., M. L. C., chairman, Permanent Exhibition Committee of Dominica, British West Indies.
H. Ormerod, managing editor "The Planters' Chronicle," Bangalore.
Leon Osterrieth, director, Société de Cultures Nieuw-Tjisalak, Nieuw-Tjisalak Estate, Java.
Paul Osterrieth, vice president Association des Planteurs de Caoutchouc, Anvers.
Julius A. Polak, Paramaribo, Dutch Guiana.
Edmund B. Prior, Golden Hope Rubber Estate, Klang, Federated Malay States.
Henry N. Ridley, C. M. G., M.A., F. R. S., director, Royal Botanic Gardens, Singapore, Straits Settlements.
Dr. P. Schidrowitz, F. C. S., rubber chemist, London.
S. Seligmann, Continental Caoutchouc und Guttapercha Co., Hannover.
A. W. Still, Managing Editor, "The Straits Times," Singapore.
G. A. Talbot, Ceylon Tea Plantations Co., London.
Dr. W. R. Tromp de Haas, director of the Government Rubber and Gutta-Percha Plantations, Buitenzorg, Java.
The Duke of Ursel, Belgium, Commissioner-General for the Brussels Exhibition, 1910.
J. J. W. Van Bennekom, Director, Nederlandsch-Indisch Rubber Bureau, Holland.
W. Van der Velde, president de la Section des Caoutchouc à Anvers.
Leo Weinthal, Editor, "The African World," London.
Sadao Yamada, Editor-in-Chief the "Gomu Shimpo," Tokyo, Japan.

The American Committee has an extensive list and we hope to publish it in our next issue.

THE PHILIPPINES PREPARING FOR THE NEW YORK EXPOSITION.

A LIVELY interest is being felt in rubber planting circles all over the world, in the rubber exposition to be held in New York next September and October. As an illustration of this fact, we quote below part of an editorial which recently appeared in the "Manila Cable News," published in Manila, which shows the appreciation felt in that distant part of the world, of the opportunity which planters will have in the New York exposition, to show the progress they are making. The editorial is as follows:

NEW YORK RUBBER EXHIBITION.

We learn from London papers that a rubber exhibition will be held in New York in September, 1912, on the lines of the recent London rubber exposition. The "Rubber News" of Kuala Lumpur, Federated Malay States, has this to say: "America is, we know, a great buyer of crude rubber, and it, therefore, behooves us, in the Middle East, not to lag behind other rubber producing countries in getting ourselves properly advertised at the next year's show, and the best and most effective way of course to do so is to have an adequate representation, both in quantity and quality, of our rubber staff at the exhibition."

The Philippines are certainly more interested in having an adequate representation for our infant rubber industry than our young giant neighbor, and as they are already planning and getting things in shape to properly advertise themselves a year hence, it certainly behooves us to wake up in order to do ourselves justice.

It needs no argument to prove that a rubber exhibition in New York will attract those interested in rubber, and if these men see only Mexico, South America, Ceylon, Federated Malay States, Java, Sumatra, Hawaii, Samoa, New Guinea, etc., represented, and nothing from the Philippines, they will logically conclude that we have nothing. They are not mind readers.

It appears to us the time to begin for the exposition is now, by a campaign of rubber education and a study of what we have. An efficient man ought to begin to get a decent gutta percha collection, not of ordinary grade carelessly prepared for the market, but contract with the producers to prepare a good grade that will be fit to exhibit.

All the plantations could be swung into line. The Basilan Plantation Company would be able to furnish a reasonable quantity from their trees, which, though small, are bearing. The Mindoro Baco Rubber Company would help all they could. The Richmond Plantation in Camarines would be able to furnish data. The Abucay Rubber Plantation, although young, could furnish data. But all this requires looking after and stimulating and systematizing.

The Islands have the man to do this preparatory work in the person of A. W. Prautch. He proved his efficiency in the Singapore exposition, and in the tour he made for the Government advocating rubber. His writings to the public press of Manila have covered the whole ground of the rubber question. He has shown his enthusiasm and optimism by the fact that his propaganda was at his expense. So that in him the rubber question would receive the service of sympathy and intelligence.

If we let opportunities to properly advertise our rubber growing possibilities go by default we shall have no one to blame but ourselves. We have the soil, climate and a fair beginning has been made.

GOLD MEDALS FOR THE NEW YORK EXPOSITION.

At a special meeting of the Rubber Growers' Association, held lately at the London Chamber of Commerce, it was resolved to present to the New York Rubber Exposition, which opens in September next, a series of gold, silver and bronze medals for free competition open to all the rubber plantation countries in the world exhibiting at the Exposition. The condition of the competition is that at least 1 cwt. of rubber, to be a commercial, not an exhibition, sample, must be shown for each entry made, and planters are to have the privilege of making more than one entry if they wish. The competition is to be judged by seven of the leading rubber manufacturers of America.

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

THE rubber companies of Akron are commencing to take an active interest in the education of their employes. President F. A. Seiberling, of The Goodyear Tire & Rubber Co., says that foreign labor at the Goodyear plant will be compelled to acquire a certain knowledge of the English language, and of rules of government leading to citizenship papers. Laborers refusing to submit to these tests will be discharged. This education is offered in the evening schools of Akron. It is free, and the cost is paid by the city of Akron. At present there are eight teachers in the evening schools, who teach English, civics, and the common branches. If the rubber companies all took the stand which the Goodyear is taking at present, this number would at least be tripled next season.

Mr. Seiberling also says: "I consider it Akron's duty to give the foreign population high ideals of citizenship. It is Akron's fault that the police court is filled with men who are a menace to the city. We have kept aloof from the immigrants. We have centered in our own prosperity, but Akron is second to no city in the United States commercially. In 1865, 600 men were employed here; today we have a labor roll of 25,000, and we are far enough advanced materially to devote time to the common good."

* * *

At its annual stockholders' meeting, The Royal Rubber Co. decided to raise additional money to help carry on the business of the company. The following officers were elected: President, W. M. Blecker; vice-president, C. O. Henderson; secretary, J. A. Myers; treasurer, J. E. Whigham.

* * *

It is stated that Frank B. Theiss, secretary of The Miller Rubber Co., and a former banker, expects to build a fine home this summer on the northwest corner of Market street, opposite the homes of E. R. Held and S. J. Ritchie.

* * *

The American Rubber Co. began operations about the first of the month, with a working force of fifty men. The company will manufacture inner and outer tubes and repair stock. The following officers were re-elected: Adam Duncan, president; Gilbert C. Waltz, vice-president; F. Kryder, secretary; F. E. Rowe, assistant secretary and treasurer.

* * *

Nineteen agents of the Buick cars in Cleveland territory were guests on Tuesday, February 6, of the Buick Motor Co., at their plant in Flint, Mich. Those who viewed the plant for the first time were surprised at its magnitude. There are eighteen factory buildings which cover more than 56 acres of ground and have a floor space of more than 2,500,000 square feet.

The motor building is one of the largest machine shops in the world, and covers 6½ acres of ground. In it, 1,300 men are employed, with a pay roll of $32,000. In the testing room 100 motors are running at one time. The large assembling room proved of interest, as did the track at the rear of the building which is used for testing. The other machine shops, forge shop, foundries, sheet metal and radiator factories were also visited.

* * *

As Akron supplies much of the rubber equipment, it takes a lively interest in the aviation training school that Glenn Curtiss has started on North Island at San Diego, California. The training grounds are located on North Island in San Diego harbor, and comprise many acres of level sand unobstructed by trees or buildings. The island is entirely private and within a few minutes of San Diego. Strong winds are absent, so that flying can be indulged in throughout the day.

San Diego harbor is the headquarters for manœuvres of U. S. torpedo and sub-marine fleets of the Pacific, and experiments are carried on in connection with the flights. The island is provided with hangars, workshops and a club house, and the school has its own launch connecting it with San Diego. The methods of training commence with the most simple principles of aviation, and as the pupil masters the simple elements, he is trained in the more difficult. Special balancing machines have been designed, which enable the student to obtain a complete knowledge of the controls and the art of balancing, before attempting actual flights. The runs on the ground teach the use of the steering rudder. The balance through instinct is then practiced by running the aeroplane with just sufficient power to keep two of its three wheels off the ground. The art of landing is taught by many short straightaway flights, after which right and left turns are practiced, and then the figure eight. The Curtiss school has many world-famed graduates.

* * *

Akron and The Diamond Rubber Co. are interested in the Federal investigation of the dynamiting of the structural iron which was to be placed in building No. 17 of The Diamond Rubber Co., and which was destroyed by an explosion which occurred July 4, 1910, at 10:30 P. M. at the Burger Iron Works in this city. It is stated that the jury has returned Akron indictments and that some men in northern Ohio will be implicated in these arrests. This explosion delayed the work on one of the large buildings for The Diamond Rubber Co. for some time. Windows in buildings for blocks around were demolished.

It is presumed that the explosive was brought from Cleveland to Akron in a suitcase and carried along the B. & O. and Erie tracks from the station to The Burger Iron Co. plant. The structural iron beams which were destroyed were stacked in two piles with a short space between and a fuse about 25 feet in length was carried some distance across the tracks which led up into the plant. The fuse was then lighted and in a short time reached the suitcase. The explosion twisted many of the beams out of shape and tore many apart at the ends. Part of the suitcase and portions of the fuse were found by police authorities. Many bottles were discovered, which led to the belief that nitroglycerin was used. The explosion was planned so that the perpetrators could easily escape. The McManigal confession, it is claimed, has cleared the whole plot.

* * *

The Cleveland Auto Show, which was held in Central Armory February 17-24, was highly successful. Many cars were shown and many high-grade cars were on exhibition. The decorations of the Armory cost over $10,000, and the exhibitors who were in attendance at the other shows about the country considered it an exceptional success. The Armory presented a beautiful sight. Floor space was much in demand. The Cleveland Auto Club gave a willing hand to the parties who had proposed an exhibition hall in Cleveland which would be used the year around for various purposes and give sufficient space for exhibitors at the annual automobile show.

* * *

J. F. Singleton, formerly advertising manager of The Firestone Tire & Rubber Co., has resigned his position and associated himself with The Taylor-Critchfield Advertising Agency, of Chicago, Illinois. His successor will be appointed later.

* * *

The Goodyear Tire & Rubber Co. had a fire at their Houston, Texas, branch office February 18. Much of their stock was destroyed and the branch was compelled to suspend business until a new stock was secured from the nearest branches and the factory at Akron.

* * *

The Goodyear Tire & Rubber Co. has a special department given to aviation supplies, and was among the first of the American rubber manufacturers to reckon with the aeroplane as a coming means of transportation and to make preparations for its

arrival. This company makes a special aeroplane tire, which is similar to, but flatter than its cousin, the motorcycle tire. It is made like a small automobile tire, instead as a development of the bicycle tire. The aeroplane tires must take terrific strains at times and must be made so that wrenches will not loosen them from the rims. The lives of the aviators are quite likely to depend on the sturdiness of the tires on their wheels. These details are being carefully studied out by the various tire manufacturers, upon whom the aviators depend for their safety in this line.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

A MOST attractive and educational window display graces the central show window of the B. F. Goodrich Co. warerooms on Boylston street in this city. It is a representation, in miniature, of a South American jungle, and shows the gathering of the latex and the smoking process, as done by the native Indians. At the front is shown the trunk of a real tree, with herring-bone tapping, the sap running down to a cup at the foot. Several tree trunks are shown, and the whole surface is covered with artificial grass, shrubs and plants. Excellent human figures, about two feet high, are seen collecting sap from the cups on the trees. Further along is to be seen an Indian smoking a newly-formed biscuit, the fire under the smoker being simulated by an electric light under red glass. The whole forms a picture which has attracted the attention of every passer-by (and these are numbered by thousands), and the school teachers have contracted the habit of bringing groups of children to show them the way caoutchouc is obtained and manipulated in preparing it for market. Besides this central scenic display there are samples, each one labeled, of different kinds of rubber—crude, washed and Ceylon crepe, specimens of fraudulent and adulterated rubber—also tapping tools, pans, a smoking cone, seeds and various South American Indian curiosities. Manager Limric is receiving many commendations on the attractiveness of the display.

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And speaking of show windows, The Riker-Jaynes drug store on Summer street recently had an effective window display which was built up entirely of rubber goods. All sorts of druggists' specialties of soft and hard rubber were included, many of them being labeled and price marked. Prominent among these specialties were various kinds of hot-water bags and fountain syringes, and backing up the whole collection was a hot-water bag of white rubber, perfect in proportion and large enough to hold a 250-pound man. Prominent at various points in the window were framed photographs showing scenes in the rubber forests of South America, as well as the processes of tapping, collecting the latex, smoking, shipping, etc. The window was attractive and instructive, and was constantly surrounded by a curious crowd.

Some of the manufacturers of rubber heels undoubtedly have an understanding regarding the prices at which their goods shall be sold. The schedule quotes certain prices per dozen, gross, and larger quantities, and they have been using their best endeavors to induce their principal customers—the shoe findings dealers—to stick to that schedule. They have not always succeeded in preventing competitive price cutting, though it looks as if they had considerable difficulty in locating the offending dealers. The representatives of these manufacturers recently met in this city and conferred on this subject, endeavoring to formulate some plan to protect their customers from cut-throat competition. It is not understood that a solution of the problem has been reached, but yet further efforts in this direction may be expected. If you find that the next rubber heels you buy have a number on them, you may make up your mind that these manufacturers have decided to adopt the scheme now used by the kodak people or the watch people to keep track of their goods, and to secure such evidence as they can of the way some of their product, sold under a positive understanding regarding fixed prices, got into the hands of certain findings dealers who cut prices.

* * *

If you want to know anything about the Cuban metropolis, or the Panama Canal, ask Francis H. Appleton. At the time of present writing, accompanied by Mrs. Appleton, he is on a trip to the West Indies and Panama, and will probably be back again to business about the time this letter is being read. Mr. Appleton is an experienced traveler and a keen observer, and he will probably return with a big collection of facts and experiences.

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The lure of the tropics is being felt while the thermometer hovers around zero, and hits it above and below with alarming regularity and frequency. A. N. Mayo, of the Fisk Rubber Co., Chicopee Falls, sailed from New York on the 24th for a similar trip to that mentioned above. Mrs. Mayo accompanies him.

* * *

Either last summer was a very dry one, or next summer is expected to be, if sales of garden hose are any criterion. Dealers and retailers seem to be sending unusually large orders, which can only be explained by one or the other of these suppositions. This is the busy season for manufacturers of garden hose, and shipments average very large at this time, but the general report is that the month just closed figures away above the average in this particular.

* * *

The automobile tire business is lively in all the factories producing this class of goods. One factory devoted to this industry shipped out over $600,000 worth of tires during the month of January, and may equal this record in February, though the month is a shorter one.

* * *

E. L. Phipps, who is known to a large number of readers of THE INDIA RUBBER WORLD as a champion ball twirler who participates in every baseball game held at the outings of the Rubber Club of America, and whose more serious vocation is selling rubber boots and shoes for the United States Rubber Co., had a narrow escape the middle of last month. He was on his regular selling trip, and was riding in a Pullman car on the Pennsylvania Railroad, when that car, with several others, left the track and rolled down a high embankment. When he came to his senses he found the car lying on its side. He counted his arms and legs and felt other portions of his anatomy, and climbed out through a window. After taking an inventory of his aches, pains and contusions, he concluded he could be of some use to his fellow passengers, so he proceeded to help rescue them. But while not severely injured, he found himself so well shaken up and considerably bruised, and the shock on his nerves sufficient to require him to take a rest. So he returned home for a few days before continuing his trip.

* * *

The recent meeting of the Rubber Club of America has awakened much interest in the trade, and as a consequence there have been large accessions of members. Secretary Balderston is receiving a dozen or more applications a week, and within a month more than fifty men connected with the rubber industry have became members. President F. C. Hood is following up his suggestions for broadening the influence of the club by personal work and taking measures for increasing the membership, making it a national, rather than a sectional body, and investigating the possibilities of bringing about a standardization of crude rubber; while planning other ways and purposes which will make it more and more influential and beneficial to the trade.

* * *

Some of the older members of the trade will remember the annual rubber auctions which were held for many years during the last quarter of last century. Thousands of cases of rubber

boots and shoes, of many brands and several qualities, were shipped to Boston, where Johnson, Moody & Co. hired a vacant warehouse, ranged samples in case lots in convenient aisles for inspection of bidders, and where Fred Nazro, the lightning calculator and cyclone auctioneer, hustled off the lots at a speed which almost took one's breath away. These people will remember the genial, soldier-like Mr. Moody of this firm, one of the best-loved men in the trade. Luther R. Moody passed away almost without warning February 12. He had for some time been troubled with failing eyesight, which had reached a point where he could not recognize friends on the street; but he was still able to get about unassisted. He had made an appointment with Fred Nazro to eat dinner with him at Young's Hotel on the fortieth anniversary of their joining in business, but on that day he was buried. He had a very wide circle of strong personal friends.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

CHICAGO tire men never before gathered such a harvest as that reaped at the automobile show. Never were there so many representatives of the tire branch of the rubber industry in the city at one time, as during the two weeks that the show lasted. During the first week the gallery of the Coliseum was devoted to exhibits of pneumatic and solid tires for pleasure vehicles, while the last week was given over to the exhibition of the heavy, solid truck tires.

Orders are still rolling in as a result and the jobbers are working overtime to rush shipments.

* * *

The gathering of officials of the United States Tire Co. was one of the largest. Among those who attended the show were O. S. Tweedy, manager of the eastern sales district; H. H. Severance, of Detroit; Charles Marshall, of Minneapolis; J. A. Weise, of Los Angeles; George C. Hubbs, of New York, advertising director; and Harry Davis, of New York, publicity manager. Practically all of the salesmen of the central district, headquarters of which are in Chicago, attended daily conferences with A. I. Philp, central district manager, at which plans were laid for the coming season.

* * *

One of the interested visitors at the show was Frank A. Seiberling, president of the Goodyear Tire and Rubber Co., Akron, Ohio. At a banquet at the Congress Hotel, at which all of the Goodyear branch managers and officers were present, Mr. Seiberling declared that Chicago's exposition showed conclusively that the company would have the biggest year in its history during the coming season, and that the Akron plant would be forced to utilize every possible moment in filling orders already assured.

H. B. Hamlin, in charge of the motor truck tire department of the Goodyear company, and S. A. Falor, head of the motorcycle tire division of the same company, also attended the show.

* * *

Visitors to the show were surprised at the large sizes of pneumatic tires shown by the Fisk Rubber Co., pioneers in the field of interchangeable tires. Among the splendid examples exhibited were one 5 x 43 tire and another 6 x 40.

* * *

In order to place before car owners the non-skid feature of their tires in a practical way, the Republic Rubber Co. presented each motorist with a miniature Staggard tread tire. There was always a crush to be found around booths 30 and 31 of automobilists seeking to obtain one of the Republic's unique little souvenirs. The little tires—exact counterparts of the company's Staggard tread tires—showed just how the heavy solid rubber studs are set along the tread of the tires and how they are "staggered" to prevent skidding.

The company's exhibit was in charge of John H. Kelly, former Chicago manager and now manager of tire sales, with headquarters at Youngstown, Ohio. Mr. Kelly was warmly welcomed back to Chicago by his host of friends on "automobile row" and is still in the city with his hands full of "aftermath" of the show in the shape of fat orders.

Mr. Kelly has been succeeded as Chicago manager by John W. Maguire, who has been with the Republic company nearly seven years. He formerly traveled for the company, making his headquarters in Youngstown.

* * *

With the establishment of a branch office of the Firestone Tire and Rubber Co., in Minneapolis, shortly after the first of the year, George Martin, formerly in charge of the St. Louis agency, was placed in charge of the new agency. J. P. Patterson was transferred from the Chicago branch and placed in charge of the St. Louis agency. He was succeeded by J. J. Hegeman, credit man.

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Paul E. Bertsch, general manager of the Motz Tire and Rubber Co., was one of the visitors to the show who expressed himself as greatly surprised at the large number of dealers in attendance.

* * *

"Nothing pleases a tire manufacturer quite so much to to have a set of his tires give a mileage return far greater than the assurance embodied in his guarantee," said A. I. Philp, of the United States Tire Co., recently. "And such results also appeal to car owners. For this reason the establishment of a co-operative relationship between the manufacturer and consumer is advantageous to both."

* * *

Owing to a sudden change in the plans of the newly formed Stearns Rubber Co., the spacious quarters occupied by the company at West Jackson boulevard and South Market street have been given up, and Mr. E. G. Stearns, president of the company, has removed to the Fort Dearborn building.

* * *

George M. Munsa, who covers the entire territory west of the Mississippi river for the Empire Rubber Manufacturing Co., has just returned from a trip to the coast and reports conditions extraordinary.

"Nothing but prosperity is in store for the rubber trade in the west during the coming season as far as I can see," he said. "I visited all of the large cities and conditions are great. One jobber out in Kansas told the whole story in a nut shell when he said: 'Even if we shouldn't have another rain before July 1, we will beat all records of sales for former years.'"

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

AN effort is being made to reorganize the Consumers' Rubber Co., of Bristol, which went into the hands of a receiver as a result of temporary financial difficulties during the latter part of last December. The plan is to be carried out by two lawyers, Percy W. Gardner and J. F. Dunbar, the latter of whom represents the George A. Alden Co., of Boston, and the New York Commercial Co.

The plan was outlined several weeks ago in a circular letter sent to the stockholders, in which it was stated that a sale of the assets in bankruptcy proceedings would hardly bring 25 per cent. of the liabilities. From this would have to be deducted the expenses of receivership. Many of the stockholders have already given the lawyers the power of attorney to carry out the deal.

Briefly, the plan consists of an exchange of the stock of the Consumers' Rubber Company for preferred stock in a financially sound concern—not connected with the United States Rubber Co.—and not a competitor of the Consumers' Company. The name of this company has not been announced, the statement

being made that it was one which desired to annex a rubber shoe department.

The desirability of the scheme was impressed upon the stockholders by pointing out that the preferred stock would be six per cent. cumulative after the first year and that, being preferred, it would get dividends before the common stock of the company, and that this would furnish an incentive for a rapid retirement of the Consumers' stock. It was claimed by the attorneys that the new company would probably retire the mortgage, so that the lien would be of real value and would bring a return of 100 cents on the dollar. It is proposed, if the plan is accepted, to retain Terrence McCarty as manufacturing executive.

A series of complicated court proceedings have followed in the wake of the attempted reorganization. The first was a suit by the Atlantic National Bank, of which Percy W. Gardner is a director, to recover on two notes, one for $2,500 and the other for $5,000, both made payable to the Consumers' Rubber Co. three months after date, the first mentioned being dated August 30 and the second August 29, 1911.

The second suit came early in February. This time the Atlantic National Bank filed an action against the Industrial Trust Co. in the Superior Court seeking to recover $880.51 and $1,972.14, respectively, on two notes, which the bank says it paid by mistake, not knowing, at the time, of the receivership appointment.

In the meantime Isaac Varney & Sons' Co., of Fall River, Massachusetts, attached Terrence McCarty's property in Bristol for $2,000 in a suit, and almost on the same day the General Fire Extinguisher Co., of Providence, gave notice in the town clerk's office at Bristol that it had a lien for $817 on Mr. McCarty's belongings.

To still further complicate matters the William L. Gough Co., a New Jersey corporation with offices in New York City, secured a writ of replevin from the United States District Court here, the first in 20 years from that tribunal, in an effort to secure payment on 4,388 pounds of crude rubber and seven cases, or 2,286 pounds of Palenberg gum, the total value of which was placed at $4,238.

The writ was returnable on March 1, on which date Receiver R. S. Emerson was cited to appear at the United States District Court.

* * *

Wire to supply the insulating department is to be made in that portion of the National India Rubber Co.'s plant made vacant by the recent transfer of the druggists' sundries, mechanical fabric and hose departments to a Cleveland mill. It is expected that the necessary furnaces and other apparatus will be ready for the commencement of operation about April 1.

Orders were given on February 2 for locating the new department in one corner of the factory. As this will do away with the necessity of purchasing wire from other concerns, it is expected that this feature of the industry will be greatly developed later.

The work of dismantling the departments which were sold to Cleveland interests began on January 25 and by the latter part of February, 60 carloads of machinery had been shipped.

Bristol is a small town, and it was feared among the inhabitants that the removal of the departments would work hardship. This did not develop, however, as many of the 600 hands affected were notified that they could obtain work in the shoe departments, if they should apply. They did, and the rubber shoe output was increased soon afterwards from 750 cases to 1,000 daily, divided among the departments as follows: tennis shoes, 150; gum shoes, 50; arctics, 50. A number of clerks and employes followed the departments to Cleveland. The departments moved had been in operation since 1868.

A decided improvement in the rubber trade in Rhode Island has followed the depression which was felt keenly toward the close of 1911 and the beginning of the new year. This is particularly noticeable at the plants of the Woonsocket Rubber Co. and the National India Rubber Co., the latter at Bristol, both of which are now running full time.

After a shut-down of two weeks, which ended February 12, the Alice and Millville plants of the Woonsocket Rubber Co., resumed, the former with 1,400 and the latter with 800 employes, and since that time they have been running with full forces. It was announced at the time of the re-opening that the prospects for a continuance of full time operations are excellent, and that the only shut-down expected will be a short one for the annual stock taking.

* * *

By direction of Colonel Samuel P. Colt, president of the United States Rubber Co., George Schlosser, who has been general superintendent of the Woonsocket Rubber Co. for several years, will, in the future, have charge of the plant of L. Candee & Co., New Haven, Connecticut, in addition. A more detailed account of Mr. Schlosser's career will be found in the "Personal" column in this issue.

Incidentally it may be mentioned that in addition to being a successful mill superintendent, he is president of the Woonsocket Y. M. C. A. and is a vestryman at St. James Episcopal Church, Woonsocket.

* * *

William I. Resnikoff, foreman of the rubber department at the Phillips Insulated Wire Co.'s plant, Pawtucket, for eight years, resigned recently to take charge of a rubber garment concern in Brooklyn, New York. A number of his friends and fellow-workers gathered at his home for a farewell party and presented him with several articles.

* * *

The B. & B. Fibre Corporation is the name of a company chartered at the State House, Providence, on February 16 for the purpose of engaging in the business of manufacturing, buying and selling rubber, fibre, rope, lining, oil rope, or any of their by-products. The new company is to be capitalized at $100,000. The incorporators are Frederick Burnham, of Warwick; Gustav Braunlich and Willis H. Richardson, of Providence.

* * *

The Revere Rubber Co., the Providence plant of the United States Tire Co., secured 28,347 square feet of land on the west side of Eagle street, south of the corner of Valley street near its plant during the early part of February. It is understood that the land is to be held to provide for further expansion of the plant.

* * *

At a meeting of the board of directors of the Narragansett Electric Lighting Co., held February 6, Arthur L. Kelley, who is head of the Mechanical Fabric Co., was re-elected president, and Colonel Samuel P. Colt was again chosen to membership on the executive committee.

* * *

On the last Sunday in January a new chantry and cloister to St. Michael's Episcopal Church, Bristol, was dedicated as a memorial to Samuel P. Colt, Jr., who died a number of years ago. It was presented by Colonel Colt. The structure is made of Portland stone and is of Gothic design similar to the church. The church was founded in 1718 under the jurisdiction of the See of London.

* * *

Mrs. Mary Ann Follett, 94 years old, widow of James Follett and mother of Henry A. Follett, paymaster of the Alice and Millville Mills of the Woonsocket Rubber Co., died at the home of her son, 236 South Main street, Woonsocket, February 2. Mrs. Follett was born June 11, 1818, at North Stonington, Connecticut. She had been a resident of Woonsocket for more than 70 years, and was as well known as was her son.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

IF it does not begin to rain pretty shortly, this season will develop into one of those dry ones which were so much feared in the early days. So far there has been only about half of the normal rainfall, and if there is the same shortage in the future, there will soon be much complaint among the footwear dealers. It has been a long time since there has been a genuine dry year in California, although in early days they were quite common. Extensive cultivation, however, has done away with the vast vacant tracts of land which formerly became barren wastes during droughts and this same growth of verdure preserves the moisture, so that droughts are not so severe. Moreover the gigantic irrigating systems supply water to such an extent that a dry year would hardly be felt.

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The Pacific Coast Rubber Manufacturers' Association has issued the following letter: "San Francisco, February 10, 1912. To Manufacturers and Jobbers of Mechanical Rubber Goods and Druggists Sundries: This is to advise you that the City of San Francisco is desirous of having before them a set of specifications covering various mechanical rubber goods, druggists' rubber sundries, and that those specifications may be so worded as not to exclude any of the manufacturers or jobbers from bidding on the same. These specifications are to be placed before the Purchasing Department of the Board of Supervisors, and it is desired by them that all manufacturers agree upon a set of specifications that will meet the requirements of the city. This applies to all lines of mechanical rubber goods, druggists' rubber sundries, etc. To provide for this contingency a meeting will be called at the Palace Hotel at 12:30 o'clock Tuesday, February 13, 1912, and you are invited to attend and join in the discussion as to what will best serve the city's interests. Joseph V. Selby, President Pacific Coast Rubber Manufacturers' Association." A meeting was held on the 13th and a committee selected to suggest a line of tests, and this will undoubtedly take some little time. The merchants are all pleased at this unusual attitude on the part of the present progressive administration. It indicates that the city officials are desirous of closing all possible avenues of graft. They admit that men in the rubber business know more about it than political experts, and they ask the rubber interests to suggest a line of practical tests that will enable the city to select a line of suitable goods for the various departments intelligently.

* * *

The trade has learned with regret of the recent death of Mr. Huff, bookkeeper for the Gutta Percha and Rubber Manufacturing Co., of this city. Mr. Huff had been bookkeeper with this firm for a period of nearly 50 years, and he was well and favorably known to the entire trade.

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Work on the new buildings at the factory of the American Rubber Manufacturing Co. is progressing favorably. The superintendent at the factory, Mr. Oliver, recently resigned from that position.

* * *

The Gorham-Revere Rubber Co. has just completed the second month of marketing the new Revere tire and has met with marked success. So far the tire department has not received a single complaint. The advertising, done by a well-known artgraver of New York, has made a decided hit. Mr. Brady, of this company, reports that business is improving steadily, and that reports from the sawmill counties are now much more favorable than they have been for a year or more. This company held a salesmen's convention at Seattle, Washington, February 23 and 24. The salesmen from the Portland, Seattle, Tacoma and Spokane branches were present. Each man was presented with a very handsome stick pin as a memento of the banquet which was held at the Ranier Club. The business meetings were held in the Washington Hotel. This convention, like the one held in January in San Francisco, was a pronounced success.

E. H. Parrish, of the Gorham-Revere Rubber Co., left San Francisco in February for a tour of the Orient, taking in China, Corea, Northeastern Russia, Japan and possibly Australia.

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The Bowers Rubber Works report that January was the best month for business in profit and amount done, that they ever had in the history of the company.

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Johnson & Dunnagan, auto tire dealers in Portland, Oregon, have sold out their mechanical department.

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The Diamond Rubber Co. is still making further changes and improvements with its branches on this coast, notwithstanding that the company has put its seven branches into full working order in the coast cities within the past few years. The branch at Los Angeles is to have a fine new home in the new building which is nearly completed at 11th and Olive streets. This will be one of the finest of the stores on the coast, and the plans are generally along the line of the rest of the branch stores.

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A company known as "The National Rubber Substitute Co.," has been incorporated in San Francisco.

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It is reported that the Taft Vulcanizing Works, at Taft, California, a partnership concern, has recently dissolved.

* * *

The National Pacific Rubber Co., which proposes to manufacture crude rubber, fertilizer and iodine potash from sea kelp, has leased the buildings and holdings of the San Pedro Canning Co., at Terminal, California, for 15 years. Machinery for their purposes, will be installed at an estimated cost of $75,000.

* * *

A. S. Rhoades, manager of the specifications department of the Diamond Rubber Co., and L. G. Lehouse, city salesman for the company, are both leaving for Manila, Philippine Islands, where they will take important positions with the Bachrach Garage and Livery Co., of that city.

* * *

G. E. Robert, a rubber merchant from New Zealand, has been a recent visitor in San Francisco.

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Phil H. Lyon, of Los Angeles, manager of the Southern branch of Chanslor and Lyon, and W. A. Avery, manager of the Seattle branch, are in San Francisco for a conference with Henry D. McCoy, manager of the local branch.

ASBESTOS SHOE SOLES.

THIS paragraph has been going 'round the newspapers:

"Rubber and asbestos mixed has been utilized successfully for the manufacture of soles for outing shoes. The material has the appearance of a thick, close felt, without odor, and without any discomfort to the feet. These will be extensively introduced next season."

Inquiry among the manufacturers of rubber shoes—and especially of outing shoes—fails to disclose anyone in this country who has embarked upon the manufacture of shoes with asbestos soles, although something of this sort has been tried abroad. On the face of it, it is not especially obvious why outing shoes should require asbestos soles as, ordinarily, the conditions under which they are worn—for instance, on tennis courts and golf fields—are not such as to endanger the soles of the wearer's feet from excessive heat. Possibly they might be useful for politicians to wear when invading the enemy's country in a hot compaign.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

THE local factories are in operation full-handed and many of the concerns are working in day and night shifts to keep up with orders. The Thermoid, Home, Empire, Hamilton, United and Globe, and Joseph Stokes rubber companies are working up to capacity, and officers of these companies report that the outlook is particularly good for a continuation of the prosperity in so far as their business is concerned.

The United and Globe Rubber Manufacturing Co.'s are doing a large business in the manufacture and sale of hose couplings for air brakes, supplying many of the railroads of this country, and many in foreign countries. The local plants manufacturing automobile tires say business in this branch of the trade is fully up to expectations.

* * *

Fire destroyed a section of the plant of the Empire Rubber Co. recently. The section destroyed was used for storage purposes and contained a large quantity of benzine, cement, oil and machines used in coating rubber. It is the belief of President Murray and Secretary Cornell that the fire was caused by friction from one of the machines, which ignited the oil in one of the upper floors. Luckily the fire occurred during the day. This, together with the fact that the burned structure was situated apart from the main building, enabled the firemen to prevent the blaze from reaching the section where the more valuable rubber was stored.

* * *

Wholesale thefts of rubber by employes of the Ajax-Grieb Rubber Co. were brought to light by the arrest of Fred Volk, teamster, and Jacob Sweetlove, factory hand. The company missed so many automobile inner tire tubes that they invoked the aid of the authorities, with the result that detectives were put to work on the case. After several weeks' systematic search they arrested the two employes.

Sweetlove confessed to the authorities that the thefts had been going on for many months. The rubber was carted off by the teamsters and deposited with a "Fence" and later disposed of to junk dealers, who sold it out of town.

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L. P. Kuhl, southern representative of the Thermoid Rubber Co., and Miss Susan Henry, employed by the same concern, were married last month.

* * *

The United and Globe Rubber Co. and the Empire Rubber Co. recently furnished the city of Trenton fire department with 5,000 feet of fire hose. The hose was inspected and tested during the making by the Underwriters' Laboratories, of New York City, which were paid at the rate of one cent a foot by the city. The hose more than came up to the specifications.

THE PROPOSED CHEMICAL SCHEDULE.

THE new chemical schedule before Congress includes various materials used in rubber manufacturing, a synopsis of which appeared in THE INDIA RUBBER WORLD for July, 1911 (p. 380), in connection with details of imports of materials used in rubber manufacture, during the fiscal years 1909 and 1910. A similar report is now being compiled for the fiscal year 1911.

The new rates, being as yet only proposed, are of course subject to discussion, but even in that condition they are of interest and include the following changes:

Sulphuric acid, now paying ¼ cent per pound (about 8.63 per cent.), would come in free.

Carbonate of ammonia, now paying 1½ cents per pound (about 27.73 per cent), would pay half that rate.

Acetone, at present unspecified, would pay 1 cent per pound.

Ground chalk, now paying 1 cent per pound (about 39.37 per cent.), would pay 10 per cent.

Balsams, now coming in free, would pay 10 per cent. when crude, and 15 per cent. when in advanced condition.

Chloride of calcium, crude, now paying 25 per cent., would come in free.

Benzol and certain other coal-tar products, now coming in free, would pay 5 per cent.

Crude glycerine would continue to pay 1 cent per pound (about 11.29 per cent.); while refined glycerine, now paying 3 cents per pound (about 10.63 per cent.), would only pay 2 cents per pound (about 7 per cent.)

Gums, which have hitherto been free, would be dutiable. Gum copal would pay ½ cent per pound, while gum Kauri and Damar would pay 1 cent per pound.

Calcined magnesia, now paying 7 cents per pound (about 43.27 per cent.), would pay one-half that rate.

Castor oil, now paying 35 cents per gallon (about 34.94 per cent.), would pay 20 cents per gallon (about 20 per cent.).

Linseed oil, now paying 15 cents per gallon (about 27.11 per cent.), would pay 13 cents per gallon (about 22 per cent.).

Palm oil, now coming in free, would pay ¼ cent per pound.

Baryta, unmanufactured, now paying $1.50 per ton (about 59.11 per cent.), would pay 15 per cent., while in manufactured condition (now paying $5.25 per ton, or about 52.11 per cent.), it would pay 20 per cent. Minimum rates would be respectively 40 cents and $1.30 per ton.

Black pigments, now paying 25 per cent., would only pay 15 per cent.

Prussian blue, now paying 8 cents per pound (about 44.23 per cent.), would pay 20 per cent., but not less than 3 cents per pound.

Ultramarine, now paying 3 cents per pound (about 32.22 per cent.), would pay 20 per cent., but not less than 2 cents per pound.

Oxide of cobalt, now paying 25 cents per pound (about 24.14 per cent.), would pay 10 cents per pound (about 9½ per cent.).

Chrome green, now paying 4⅜ cents per pound (about 25.98 per cent.), would pay 20 per cent., but not less than 3 cents per pound.

Litharge, now paying 2½ cents per pound (about 53.32 per cent.), would pay 25 per cent., but not less than 1 cent per pound.

Venetian red, now paying 30 per cent., would pay 10 per cent. or 20 per cent., according to stage of advancement.

Whiting and Paris white, dry, now paying ¼ cent per pound (about 43.98 per cent.), would pay 1/10 cent per pound (about 17½ per cent.).

Dry oxide of zinc, now paying 1 cent per pound (about 17.47 per cent.), would pay 15 per cent., but not less than 6/10 cent per pound. Similar rates would apply to dry white sulphide of zinc, lithophone, etc.

Bichromate of potash, now paying 2¼ cents per pound (about 45.86 per cent.), would pay 1 cent per pound (about 20 per cent.).

Caustic potash, unrefined, now free, is apparently made dutiable at the rate of 6/10 cent per pound.

Caustic soda, now paying ½ cent per pound (about 15.39 per cent.), would pay only half that rate.

Sulphur in any form would be in the free list.

Talc, now paying 35 per cent. in ground, powdered or prepared form, would only pay 15 per cent.

Various materials used in rubber manufacture coming under other schedules, the chemical schedule does not cover the whole of them. While the changes proposed are as yet to be subjected to much debate, and cannot be regarded as certainties, they will serve to indicate points for the consideration of rubber manufacturers, thus inviting criticism by those whose interests would be affected by their adoption. Like all legislation, the wording of the new schedule is open to various constructions. The rates, as quoted, are therefore more or less subject to official interpretation.

GOODRICH CONVEYOR BELT

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THE MECHANICAL RUBBER CO., CLEVELAND, OHIO

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

THE raw rubber market still keeps in a favorable state for trade in its ups and downs of a few pence per pound, and if this state of affairs continues we are not likely to have any repetition of such trading losses as have been referred to previously, as having occurred during last year in both large and small factories. It is rarely possible for firms when making selling contracts for a twelve-month supply of goods to cover their raw rubber requirements for more than three months ahead; so it will be at once recognized how disastrous a rise of shillings per pound may prove in the case of such contracts. There has been a good deal of speculation as to how those firms which do not publish their accounts got on during late years, but there is little likelihood of the inquisitive obtaining enlightenment on the point. Some idea may certainly be gained where changes of personnel have occurred, it being common to blame foremen and managers in the case of bad results, rather than for directors to indulge in recrimination among themselves. I don't know whether the loss shown by the Peter Union Tire Co. is to be attributed to any one specially adverse factor, but they have certainly been prominently identified with the supply of motor-bus tires in London under the mileage contract system. Other tire firms tell me that at present cut prices, this has become a rather hazardous business, necessitating a considerable floating capital. Where the profits are as small as they are now, there is a good chance of their vanishing in a business like this, where so much depends on the honesty and carefulness of those whose actions it is impossible to keep under continual supervision. With regard to the publication of large dividends, it is said that although this may give a correct impression of prosperity due to good management, it has its drawbacks as leading to continual demands from customers for a reduction in prices. "You are making big profits," they say, "and are, therefore, easily able to reduce your prices."

THE TRADING POSITION.

OF course shareholders have their own way of looking at the matter, but a manufacturer tells me that it is better to pay only moderate dividends up to 10 per cent. and to put excess profits into a reserve fund. The Leyland & Birmingham declared their usual 5 per cent. interim dividend at the end of the year, but the actual result of the last six months' trading will not transpire until the end of their financial year, which is now at the end of June. Apropos of what I have said above with regard to tire contracts, I may add that the London General Omnibus Co. has recently placed orders for 500 sets of tires, of which I understand 300 have gone to the Dunlop Co. The fact that one important tire firm declined to bid supports what I have said as to the somewhat hazardous nature of the business today.

MR. Arthur Mallaby, who was for some time connected with the Non-Suction Rubber Co., and later with the Haycliffe Rubber Co., both of Bradford, Yorkshire, has severed his connection with the latter firm and has started rubber works at Lower Mills, Brimscombe, Gloucestershire, under the style of Mallaby & Co. This is a new industry for this rural district, though a precedent for invading an agricultural community is to be found in the cases of the Avon Rubber Co., the Sirdar Rubber Co., Wallington & Weston and Spencer Moulton & Co., whose various works are about thirty miles away from Brimscombe. The availability, in many cases, of water power, cheap labor and trifling rent and rates are important advantages accruing to those who leave the large manufacturing centres to penetrate into the country, and the latest recruit is certainly well placed as regards the above advantages. There are two water wheels at Lower Mills generating 40 horsepower, in addition to a large boiler and 90 horsepower steam engine. The business to be done will be largely concerned with all kinds of tubing, cords, hose, piping, etc., though the manufacture of general mechanical rubber goods will be carried on. A rubber heel department is also to be installed. One important point about these rural rubber works is the improved conditions under which the operatives live compared with their brethren in the towns, and when it is said that labor is cheap it must be remembered that so are house rent and agricultural produce.

NEW WORKS.

THE heavy snowfall in the northern districts in the middle of January led to the usual sudden demand for goloshes, a demand which effected a good clearance of stocks in Manchester, Liverpool and other large towns. The increasing use of salt to liquify the snow in our streets has had a good deal to do with the rise of the golosh into favor. Where ten years ago one only saw one or two pairs of goloshes or snow boots in the cloak rooms of the large clubs, now one sees them in dozens, a sufficient testimony to the revulsion of feeling. The announcement of "Boston" rubbers is now quite general in boot shops up and down the country. As long, however, as goloshes are only generally worn in times of snowfall, I do not see how the business done can be a very large one, because snow storms are not at all frequent, and a pair of goloshes will last a good many years, if only occasionally worn. With regard to the leather boot trade which some years ago was seriously threatened by imports of American machine-made boots, things have righted themselves by the Leicester and Northampton firms importing American machinery and working on American lines, a prominent feature being the elimination of hand labor. When I say things have righted themselves, I refer mainly to the fact that the export of American boots to Great Britain has largely decreased since a similar class of goods has been made in England. In other ways I think the movement is retrogressive, as the showy, cheap machine boot is not as watertight or lasting as the old hand-made boot, and one hears continual complaints of damp and leaky boots which will not stand repairs. As we seem to have entered on an era of cheap machine-made boots with these propensities for leaking, it seems to be inevitable that the wearing of goloshes will increase, being extended from the occasional snow storm periods to the much more general times of rain and mud.

FOOTWEAR.

THE prospectus of the Northern Counties Transport, Limited, was advertised on January 22, and it seems timely to say a few words of reference thereto. The share capital is £50,000; £45,000 in participating 7 per cent. preferred shares and £5,000 deferred shares. The latter have been fully subscribed by a number of men whose names appear in the prospectus, and £30,000 of the preferred shares were offered to the public. Motor haulage is now increasingly used in the industrial districts of Lancashire and Yorkshire, and it is thought that a company owning a large fleet of motor vehicles under competent management can earn large profits and save money; for firms which now use horse or railway haulage, rapidity of transit being an important feature. The company is to commence with 100 vehicles, being motor lorries with chassis of the Milnes-Daimler manufacture. These vehicles are being purchased from a previous company called Express Road Haulage, Limited, of Preston, at the price of £300 each. They carry a load of four

NEW TRANSPORT COMPANY.

tons at an average speed of eight miles per hour. The manager of the company is C. S. Lyon, a civilian engineer, who acted for many years as inspector of army mechanical transport at the Aldershot Depot, where he had the rank of captain in the army; and the appointment seems a capital one. On the basis of 4*d.* per ton-mile the earnings of 100 vehicles doing forty miles each per day would, it has been calculated, produce a result which would leave a net profit of £19,585 per annum. With regard to the important matter of tires, a contract has been made with Chas. Macintosh & Co., Limited, whereby they agree to supply and maintain the company's vehicles in tires at a fixed sum per mile for a period of two years. I note that the estimated cost of the tires is £7,801 per annum, though the details of the contract are not divulged. Depreciation is allowed for at the rate of 20 per cent. per annum.

SHORT MENTION.

Mr. E. L. Curbishley, who has been for ten or eleven years prominently connected with the evolution of the Gorton Rubber Co., Limited, has recently resigned his position of director and general manager and will, I understand, shortly start manufacturing on his own account. Mr. Curbishley came to Manchester with the late Mr. Harry Heaton, Jr., when the latter took over the Gorton Co., which in those days was a much less pretentious affair than it has since become under Mr. Curbishley's wide knowledge of the trade and close devotion to its affairs.

Mr. Charles Blair, whose reclaiming and other patents recently received notice in THE INDIA RUBBER WORLD, has disposed of his patent rights and inventions to the Reinforced Rubber Co., Limited, and has entered the employ of the company.

Mr. Wilfrid Lilley is now managing director of the Premier Rubber Co. of Manchester, the successors of B. Cohen & Co. Mr. Lilley is of the firm of Lilley & Skinner, the well-known boot factors of London, this firm having acquired a large interest in the Premier company which, originally connected only with waterproofing, now makes mechanical goods, heel pads, etc., as well.

Mr. E. E. Buckleton, of the North Western Rubber Co., won in in the Appeal Court when the defendants sought to have the judgment, given in Mr. Buckleton's favor at the Liverpool assizes upset. His case was one in which Mr. Buckleton claimed damages from an important firm of rubber brokers for his investment in a plantation company promoted by them.

Mr. Morland Dessau has resigned his management of the Crude Rubber Washing Company, Limited, and the directors have appointed Mr. Charles L. Marshall, of the Marshall Tire Co., as technical adviser, eligible to a seat on the board. Owing to the serious loss incurred by the company it is proposed to reduce the capital by one-half.

A CHEERFUL PROMOTER.

Mr. Harcourt, the English colonial secretary, is reported to have told this anecdote at a recent dinner of rubber planters. He said that a London friend of his was approached by a promoter who wished to float a rubber company. His friend was quite willing to listen to the proposition, and asked "How many trees have you?" "We haven't any trees," was the reply. "Well, how much land have you?" "We haven't any land." he answered. "Well, then, what have you got?" "Why," said the promoter, "I have a bag of seeds."

RUBBER RAZOR WIPERS.

An English patent has been granted for saucers or stands for shaving mugs, with which is incorporated a razor-wiper in the form of a strip of rubber, which is fixed in grooves in the side of the dish, in which are projections to prevent the lather from spreading.

LONDON RUBBER NOTES.

By a Resident Correspondent.

RUBBER IN THE ATHLETIC WORLD.

IT was a surprise visit, in the strictest sense of the word, which I paid to Messrs. A. G. Spalding & Bros.' athletic goods factory, at Putney Wharf. I sent no preliminary letter acquainting the firm with my wish to look over their works; and *en route* to the establishment, which is famous throughout the sporting world, I discovered that I had not a card with me; and as I knew no one at the works, or in the neighborhood who could establish my identity, I told myself that I was on rather a hopeless errand. However, walking into the office, I gave my name, indicated my business, and asked to see the manager. I was told that he was very busy. Nevertheless, a messenger was sent to his room, and within a couple of minutes I had his ear. The door of the room was ajar—a man passing by was called in. He turned out to be the foreman of the golf club department. Instructions were given him to show me over his shops, and then to pass me on to the foreman of another department, with similar instructions whereby I could make the round of the factory. Every assistance was to be given me in prosecuting any enquiries I wished to make, and it was to be particularly borne in mind that I was specially interested in the use of rubber in connection with the goods made.

Within five minutes of my entering Messrs. Spaldings' office, I was in their adjoining factory. And not only had I the satisfaction of knowing that I was quite a "surprise" visitor, but I was pleased to remember that there could not have been a single warning given to my guide. Never have I felt more strongly convinced that I was seeing work done under everyday working conditions.

GOLF CLUBS.

At the outset of my expedition, I watched golf clubs in the making.

The heads of these clubs are all modeled out of American persimmon or dogwood. The material is imported in the form of roughly-cut-to-shape blocks, to save freightage on waste. The shafts are specially selected from the finest sun-dried split hickory obtainable.

Machines do a share of the work that goes to the making of each club: a band saw cuts the rough blocks nearer to the required shape of the head; a head-turning machine, with tracing wheel and model—an American masterpiece—carves the head into perfect form; a third machine cuts the lead and horn; by a fourth the heads are sandpapered on cones.

But these machines have to perform such delicate operations that success depends largely on the operators in charge of them. In watching Spaldings' mechanics, I quickly gained the impression that the firm makes no idle boast when it advertises that it employs only the most experienced hands. And this impression deepened into a conviction, which went far towards explaining how the firm has won its reputation, as in department after department my attention was riveted by the careful and dexterous way in which the handicraftsmen employes performed their work.

There is considerably more hand work than machine work in the manufacture of these wooden clubs, and numbers of highly skilled laborers are busily engaged all the year round in planing shafts, fitting and gluing the shafts into the sockets of the heads, filing down sockets to merge into the surface level of the shafts, staining, polishing, whipping the joints, and putting on grips.

It is in connection with the grip that rubber is most largely used in this department. In the opinion of a growing number of golfing devotees, rubber insures a firmer grasp than does leather; and Spaldings' rubberized canvas grip has won for itself a particularly wide and enviable popularity.

Gutta, or rubber facings are used on some of the heads.

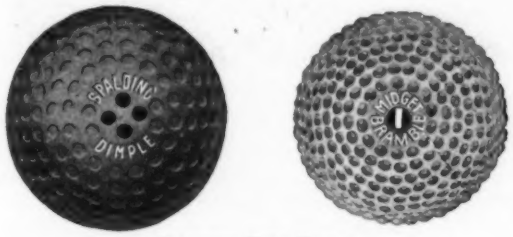
In reply to my inquiry as to whether more or less rubber was being used in this department now than in the past, the unhesitating reply was "More."

By the way, before leaving the shops where the clubs are made I went into the forge. Golfers may rest assured that all Spalding irons are genuine hand-made goods. I saw the irons being made from start to finish, and the only machines with which they came into contact—there are no others in this part of the premises—were the buffs which do the polishing.

GOLF BALLS.

Golf balls essentially come under the heading of rubber goods; and in this country, at any rate, it is customary to guard nearly every place where any such goods are made more jealously than a royal residence.

The door leading into the golf ball part of the factory was labeled "No Admittance." Upon reaching it, I was requested to wait until the manager had been specially asked whether he meant me to be shown in here. He was soon on the spot by my side, and on the outer threshold of that closed door we discussed the great secret of the rubber goods industry. It is difficult to persuade the public that there is nothing sordid about that secret; but any one with a practical knowledge of the rubber industry is well aware that the rule of "No admittance except on business" has a right to command respect.



SPALDING GOLF BALLS.

I explained that I had no wish to spy into the composition of the "dough," that I knew there was a logical reason for my not being taken to see the mixing process. Immediately the door was opened, and I was allowed to pass through into the spacious apartment where from 100,000 to 120,000 dozen of the world's supply of golf balls are made every year. One hundred and fifty women and girls, besides a large number of men, are employed by this factory solely for the making of these balls. I will describe the process of manufacture as I saw it, with my own eyes, being carried on in the various stages.

The start of the core is a special "dough." Round this is wound rubber tape, the width thereof used in the successive layers being 1 inch, ½ inch, ⅜ inch and 3/16 inch; the core is completed by the winding thereon of a layer of rubber thread, 3/32 of an inch in width. Up to the stage when the ⅜-inch tape is used, all the winding is done by hand. At this juncture, the core undergoes examination by a special machine, which tests the compression; and it is checked with regard to size. The narrowest tape and the thread are then wound upon it by machinery, and when the core is thus completed it is again tested.

The rubber covers are made in two parts, within cup-like molds which have a plain surface. A machine cuts away the "spue" separately from each half cover. A core is then placed between two of them, and the whole is enclosed in a mold whose surface is patterned with the well-known "Dimple" design of the Spalding marking. Each ball is now vulcanized, after which it again goes through the "heavy" or "light" compression machine. Finally it is painted, by being rolled between the palms of hands that are kept well coated with fresh white paint.

Since all the rubber, dough, tape and thread is weighed before it is used, on scales that are so finely adjusted as to register correctly to within less than half a gram, and every ball is separately tested over and over again as regards compression and weight, it is practically impossible for a defective ball to sneak its way out from the factory.

The Spaldings are about to put on the market, simultaneously in America and England, an entirely new golf ball, to be called the "Domino." This is a totally different article from the ball of that name which has already been on the American market.

The ingredients used in the special preparation which is to be used in the "start" of this new "Domino Ball" have never before been mixed in the particular manner to be followed in this method of compounding them. The dough is something entirely new in the rubber world. The "Domino" will be a heavy ball, with "Dimple" marking. And it is to be of medium size, that is to say, exactly between midget and full size. The price has been fixed at 30s. per dozen, retail.

CRICKET BATS AND HOCKEY STICKS.

In the cricket bat department, I devoted most of my attention to handle making, for it is in this part of the bat that rubber plays a highly important constructional function. I saw the special patent handles being made for the high grade "Record" and "Century" bats. In the center of the rattan canes forming the main body of the handles a piece of solid rubber, square in section, is fixed, and over this, throughout the length of the handle, is placed a strapping of rubber. In one corner of the workshop stood a big lot of these specially high grade bats, and the past history of their class naturally set me speculating on the marvelous feats that any one of these representatives might be destined to accomplish. Today, they were all passively awaiting the momentarily expected arrival of Tom Hayward of the Surrey Eleven. He examines every one of Spaldings' best cricket bats, and according to his judgment they are classed and stamped "Record," which is to say first grade, or "Century," which indicates a slightly lower standard.

Strips of rubber are put in the centre of the handles of all other cricket bats made in this factory, with the exception of the practice class. The bats are graded according to the number of these rubber strips in the handles, on a descending scale from three strips to one. Hockey sticks are made and graded in a similar way, four strips of rubber entering into the composition of the best variety. Some idea of the extent to which rubber enters into the manufacture of athletic goods may be gathered from the fact that in their London workshops alone Spaldings use about thirty tons of the material yearly.

FOOTBALLS.

The Spalding footballs are made at the Cowley branch of their works some little distance out of London. This interesting topic will be reserved for a later story.

Basket balls, with Pará rubber bladders, are also made in the Cowley factory.

THE GÖSSEL RUBBER SUBSTITUTE FROM SOYA BEAN OIL.

According to details published of the French patent No. 430,183, granted to F. Gössel and A. Sauer for a rubber substitute, four alternative processes are described, as follows:

1. Treating Soya bean oil with nitric acid of specific gravity 1.14 to 1.40.

2. Heating 40 parts of Soya bean oil, with 7 to 12 parts of sulphur up to 150-190 degs. C.

3. Mixing 40 parts of Soya bean oil with 8-14 parts chloride of sulphur, diluted with benzine while being heated; the mixture being then cooled.

4. Soya bean oil is heated for some time above its boiling point, in order to partially polymerize it, and is then treated with sulphur while being heated.

A Danish View of Rubber Reclaiming.

A WELL known manufacturer of reclaimed rubber in Denmark thus discusses his line of business. When he began, some years ago, there were only a few grades known, and rubber manufacturers in many cases showed a disinclination towards their use. Opinions have meanwhile changed, so that rubber goods factories, he remarks, now have in various cases their own reclaiming plants.

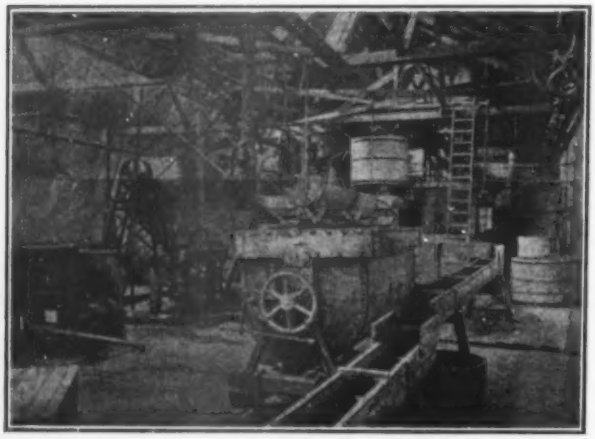
Doubt is, however, expressed whether privately owned plants will finally prevail over those which reclaim for the trade, owing to the limited experience of the former.

While some manufacturers have thus installed regenerating plants as a part of their equipment, they would seem to have done so experimentally, rather than with the idea of permanently doing this work for themselves, and of thus solving in their own factories the various problems affecting the reclaiming of rubber. To use his own words:

"In my opinion, the rubber goods manufacturer has so many difficulties to conquer in his own work that he should leave the unsolved questions of reclamation to special concerns. Operating such a plant is a piece of pioneer work, as the financial results have shown that none of the existing plants has been permanently run at a profit."

The difficulty lies not only in the question of de-vulcanization, but also in the nature of the waste treated, which is no longer what it was five (or even two) years ago. Owing to the situation of crude rubber, waste now contains a notable quantity of reclaimed rubber. It constantly deteriorates in quality, and is gradually becoming less and less varied in character. This partly results from compounding formulas being transplanted from one factory to another, through changes in the technical staff.

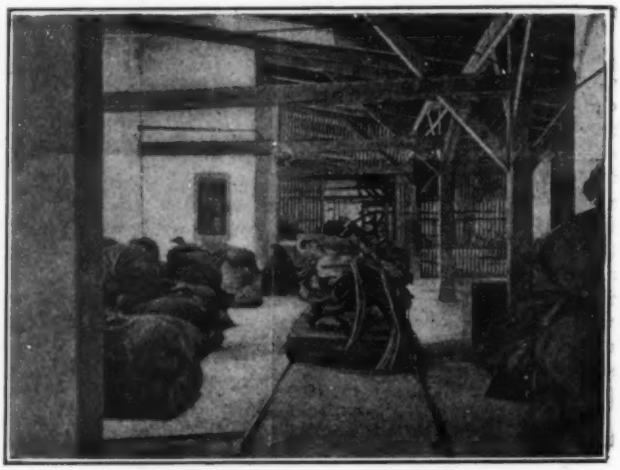
Another factor by which reclaiming is unfavorably influenced, consists in the fluctuations in the prices of waste. The profits of



TREATING ROOM IN A DANISH RECLAIMING FACTORY.

the operation naturally depend upon the cost of the waste and upon its yield, as affected by the inferiority of the original manufactured product. It would, therefore, be to the interest of the reclaiming industry for the prices of waste to continue at a low point. If, however, hundreds of rubber goods manufacturers were themselves to carry on the process, this object would not be attainable. In any case, the hope is expressed (from the reclaimer's point of view) that manufacturers will abstain from themselves carrying on the process, according as they more clearly see its unprofitable nature when undertaken upon a small scale.

One reason for the prejudice entertained by manufacturers against purchased reclaimed rubber is that they do not sufficiently test its physical and chemical properties, with the result that they



STOCK ROOM IN A DANISH RECLAIMING FACTORY.

use it the wrong way. Those concerns which have not a trained chemist of their own would do better to let such investigations be carried out by a rubber laboratory. This fact is unfortunately in most cases not appreciated, and an objection expressed to the purchasing of reclaimed rubber, on the ground that the article cannot be examined. In undertaking the process for themselves, they entrust it to a workman, thus leading to a good deal of trouble and annoyance, and not considering that it is much easier to thoroughly test a product than to make it themselves.

It would be equally unreasonable for the rubber goods manufacturer to reproach the reclaimer with the mistakes of the initial period, with a view to proving the necessity of carrying out the process for themselves. The conditions attending early development apply to the reclaiming industry in the same way as they do to rubber manufacture.

With regard to a suggestion which had been made of waste dealers themselves becoming reclaimers, he expresses the opinion that a waste dealer with a few thousand marks capital could not succeed in such an enterprise.

As to the waste arising in the process of manufacture (considered separately from old manufactured rubber) it is suggested that such waste should be sorted, instead of red, white and black being thrown together; its further treatment by the manufacturer, or otherwise, being thus facilitated.

The annexed illustrations show the boiling and washing department, containing in the foreground the "sand-washer," in which the particles of sand are removed; also a part of the stock-room in a Danish reclaiming factory.

DANISH RUBBER FACTORY REORGANIZED.

The Aktieselskabet Roulunds Fabriker of Odense, an important Danish belting concern, which went into liquidation a year ago, has been reorganized with a capital equalling $22,400.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The Rubber Industry of Japan.

By Our Regular Correspondent.

THE FUJIKURA INSULATED WIRE AND RUBBER CO., LIMITED, TOKYO.

THIS company owed its first beginning to the manufacture at Kanda in 1882, of silk and cotton flexible lamp cord by the late Mr. Zenpachi Fujikura, who had previously been engaged in making cotton braids with a machine of his own invention. In 1886 he removed his plant to Shinjiku, where he added weatherproof wire to his product, using the motive power of a watermill.

From the beginning of his career, Mr. Fujikura had foreseen the growing importance of rubber as an insulating medium. Seeing that the Japanese rubber industry of that time was deficient in expert knowledge he got Dr. J. Shimomura and Dr. K. Uyeno, professors at the Tokyo Imperial University, to make systematic analyses of the article, and took considerable pains in developing the industry.

In these efforts he was ably seconded by his younger brother, Mr. Tomekichi Matsumoto, who had been several years in the United States and had returned to Japan in 1887. In getting up the subject at the Imperial Library, Uyeno Park, Tokyo, the last-named gentleman had an opportunity

FACTORY OF THE FUJIKURA INSULATED WIRE AND RUBBER CO.

of realizing that, although books gave information about qualities and sources of rubber, they failed to deal with rubber manufacturing methods. Experiments continued at the Fujikura works, aided by the advice of experts. Finally, in 1892, the factory succeeded in making a rubber-like compound, for the production of which the concern had for some time been making unsuccessful efforts. From 1893 to 1900 their normal manufactures were continued, operations being facilitated by the erection of an enlarged factory at Tokyo.

In September, 1907, the premises were destroyed by a cyclone, being afterwards rebuilt on an enlarged scale. One half of the buildings are now being again rebuilt and will be ready by July next for operation as a factory of marked completeness.

Further technical progress was largely due to the study of American methods by Mr. Kenzo Okada, a nephew of the partners already referred to, who went to the United States for that purpose in 1894. Upon his return to Japan in 1899, he installed a good deal of machinery of foreign make, and with the aid of improved ingredients and preparations, finally accomplished the manufacture of rubber-covered wire.

Upon the occasion of his visiting the United States, Mr. Okada was enabled, through the assistance of Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, to obtain introductions to several important American rubber manufacturing companies.

TOMEKICHI MATSUMOTO.

On the death of Mr. Fujikura, in 1904, the business reverted to Mr. T. Matsumoto (already referred to), who converted it into a limited partnership, with a capital of $25,000; the members being Messrs. T. Matsumoto, K. Okada, U. Fujikura, and the late Mr. J. Hyodo. The style of the new concern was the Fujikura Insulated Wire and Rubber Co., the name of the original founder

KENZO OKADA.

being thus perpetuated. The various increases of capital indicate the progressive development of the partnership's business, the figures having been: 1904, $25,000; 1905, $50,000; 1907, $100,000; 1909, $250,000. In September, 1911, the concern became

a joint stock company; the capital being $500,000, of which $325,000 was paid up.

The product of the factory includes weatherproof wire, rubber-

CALENDER ROOM.

covered wire, lamp cord, cables, patent enamelled wire, etc.; while the motive power comprises:

Boilers (3)—70 h. p.; 125 h. p.; 150 h p.
Solid Steam engine (1)—65 h. p.
Dynamo (1)—100 h. p.
Suction gas plant—140 h. p.

About 500 hands are employed.

Among the various sections of the plant are the braiding shop, stranding shop and rubber shop, as shown by illustrations. It likewise includes the rubber mixing and tubing shop, finishing shop, tinning shop, drying rooms, testing room, etc.

The principal officials of the company include: Mr. Tomekichi Matsumoto, president, and Mr. Kenzo Okada, director and superintendent, portraits of whom are annexed.

During the past ten years the Japanese Department of Communication has been quite an extensive user of the product of this company, whereas formerly it used only the product of the India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, and Siemens Bros. & Co., Limited. Since the Russo-Japanese War the demand for insulated wire has

OFFICE OF THE FUJIKURA INSULATED WIRE AND RUBBER CO.

greatly increased and the War and Navy Departments, as well as the Communication Department, of Japan, are customers of this company. The electric companies of Japan, China and Corea also use its product.

A subsidiary company, under same general direction, makes waterproof cloths and other fabrics for government purposes.

A HIGHLY VALUED CERTIFICATE.

A HANDSOMELY engraved certificate, which will be highly valued in this office, has been sent to the editor of this paper by the officers of the Second International Rubber and Allied Trades Exhibition, which was held in London in July of last year. It is a very courteous recognition of Mr. Pearson's interest in the development of *Castilloa* planting and reads as follows:

INTERNATIONAL
RUBBER AND ALLIED TRADES EXHIBITION
ROYAL AGRICULTURAL HALL,
LONDON, 1911.
PATRON
HIS MAJESTY KING GEORGE V
PRESIDENT
SIR HENRY A. BLAKE, G. C. M. G.

HENRY C. PEARSON, ESQ.
EDITOR, "THE INDIA RUBBER WORLD"
NEW YORK CITY.

This certificate is issued with the object of congratulating you on the great interest you have evinced in connection with the advancement of the *Castilloa Elastica*, by presenting a magnificent thousand dollar Trophy. Though the Competition did not realize the object you wished, it brought forward several interesting suggestions, and there is no doubt that at the 1914 Rubber Exhibition in London, the problem of the satisfactory extraction of the latex from the *Castilloa* will be solved and the Trophy awarded.

Signed:

HENRY A. BLAKE, President. A. STAINES MANDERS, Organizing Manager.
D. FULTON, Secretary.

WIRELESS TELEGRAPHY AND CABLE MANUFACTURE.

NOW that wireless telegraphy has assumed a practical instead of a merely experimental form, the question arises of its competition with the cable system. On this subject the "Gummi-Zeitung" remarks that where there is a stream of regular traffic, the cable, notwithstanding the higher cost of its installation, can be operated more economically than the wireless telegraph, the working of which is said to be very expensive. Copper wires and cables require for their operation far less electricity than the wireless system. Hence the necessary installation of powerful machinery, and the erection of lofty masts (or *antennae*), in the latter case, besides the high cost of working.

Consequently, wireless telegraphy can only be used to advantage where there is a limited amount of traffic, or where the laying of cables is attended with special difficulty. These conditions exist in the over-sea possessions of European powers, as well as in telegraphic communication with these colonies, and it is specially in such territories that the cable industry has to fear competition.

The extension of wireless telegraphy in the German colonies has been facilitated by the removal of certain difficulties, which impeded the transmission of signals, as reported at the recent meeting of the Technical Commission of the German Colonial Economic Committee. By the erection of a series of wireless stations the German government has followed the example of the English authorities, who have established Marconi stations at the most important British colonial points.

In conclusion, the opinion is expressed that the cable manufacturing industry ought to pay special attention to instances where the installation of wireless is considered impracticable; in order to promote the adoption in such cases of the ordinary system.

A GERMAN VIEW OF RUBBER HEELS.

WHEN first introduced, rubber heels constituted a relatively simple feature of the industry. At present, however, the competition in shapes and qualities is such, that there is apparently no limit to the variety of which the article is susceptible. As the "Gummi Zeitung" remarks, a good deal of trouble and patience was necessary, while developments were impeded by the non-success, in many cases unavoidable, of the novelty.

In the first place the determination of the most suitable shapes and of the methods best adapted for attaching the heels, necessitated costly practical experiments. The rubber manufacturer, who had never had to do with heels, could not be expected to know the special requirements connected with them, while the shoemaker lacked the needful acquaintance with rubber, which, of course, has to be treated differently from leather.

Before this question was in some measure solved, a large quantity of more or less unsuitable goods was placed on the market, which fact tended to affect the manner in which the article was being adopted. If from the first there had been fewer misconceptions as to the manufacture and quality of rubber heels, they would have met with a more rapid and wider distribution. However, by correcting these defects, an opportunity was afforded of demonstrating the advantages of the article, although a good deal of questionable work had been meanwhile placed on the market.

DURABILITY OF RUBBER HEELS.

The main point on which the public needs to be reassured is that of the superior durability of rubber heels, while their other advantages (such as a lighter and more elastic tread) can only be regarded as forming adjuncts of a pleasing character. If they will not last, all other good qualities will not make them go. They must at least wear as long as leather heels, let us say two or three months; but as leather is cheaper than rubber, greater durability is called for in the latter material. The only way to make rubber heels an article of general use, is to give their wearers the impression that they have found something better than leather heels.

GOOD MATERIAL NEEDED.

On this point it is asserted that by using heels of good material there is no difficulty in so increasing the durability of rubber as to make their life two or three times that of leather heels, while the difference in cost thereby involved is more than compensated by the improvement in quality, as putting on new heels (whether leather or rubber) involves cost of labor in excess of that represented by the material used. As the weight of the body is largely borne by the heel, the burden on that limited surface is relatively heavy. The rubber heel should not be of too yielding a character, but should display great toughness. At the same time, it should not be too hard, or it would lose the property of imparting elasticity to the step, in addition to being brittle.

This toughness should result from a good quality of material, it being recommended to use the best Pará rubber, with the addition of hardening ingredients such as magnesia, litharge, etc. Any manufacturer using cheap, soft grades, and trying through high temperature to attain the desired results, will be disappointed. Too great heat results in the destruction of the elasticity, particularly in low grades of rubber; while moderate heating is advisable even with better qualities. Rubber heels are often kept a long time in stock before they are used, and in such a case, if the material has been subjected to a high temperature, they are likely to deteriorate until there is a doubt of their being suitable for their intended purpose.

Another point named is the relatively heavier weight resting on the smaller surface of a ladies' heel, which consequently requires to be composed of the best material. In these smaller sizes, moreover, labor forms the chief element of cost, so that a slight economy in the value of material does not count for much.

In the selection of shapes, it is of course advisable to choose those which are generally considered suitable. This course is all the less easy, on account of the many and frequent changes of fashion, and the consequent diversity of requirements.

PROSPECTS OF BUSINESS.

In conclusion it is remarked that there are the most encouraging prospects for rubber heels, provided the quality is maintained; and cheapness is not regarded as a preponderating factor. In view of the costly nature of the manufacture, it is doubly necessary to produce goods that will sell and do credit to the makers. Competition being keen, only "tip top" goods should be turned out, of standard character and attractive in appearance.

NEW GERMAN SUBSTITUTE FOR HARD RUBBER.

According to German reports, Herr Karl Scherer, of Frankfurt-on-Main, has produced a new substitute for hard rubber and vulcanized fiber, which is being placed on the market under the name of "Rionite." It is claimed that the new product is of the highest insulating properties, resisting water and acids; being, moreover easily worked and polished, and being made in various degrees of hardness and fusibility.

NEW RUBBER TRADE ASSOCIATION IN HAMBURG.

OUT of the Hamburg firms interested in rubber, 71 have joined the newly formed association of rubber merchants, while 39 have declined to join and 32 will await developments. The association will take steps with a view to the introduction on the Hamburg exchange of business in rubber futures.

Hamburg dealers, it is reported, are not in sympathy with this movement, which is being promoted by firms which import rubber and are not strictly speaking rubber traders. Regret has been expressed in some quarters at this attitude of the local rubber dealers.

GERMAN RUBBER IMPORTS.

GERMAN imports of crude rubber for the calendar year 1911 were 19,948 tons, against 18,705 in 1910, exports having been respectively 4,666 tons and 4,754 tons. The net consumption of Germany represented for 1911, 15,282 tons, as compared with 13,951 tons for 1910; this result showing an increase of 10 per cent. in consumption.

One of the features of the year 1911 was the increased import from Mexico, which amounted to 2,099 tons for that year, while that of 1910 had only been 1,347 tons. This increase is attributed to the progress being made in guayule cultivation in Mexico.

INFLUENCE OF COLD ON RUBBER GOODS.

RUBBER goods, when stored, must be protected from frost, says a German expert. Sufficient attention is not paid to the fact that in many instances rubber long exposed to frost loses its elasticity; becoming hard and brittle, and therefore unserviceable. It is consequently recommended to protect rubber goods against temperatures below freezing point, in order to avoid unnecessary losses.

WHAT TERRITORY DOES "JAPAN" INCLUDE?

Attention is called in the German press to the advisability of special stipulations in contracts with Japanese agents, defining the exact meaning of the word "Japan." The territorial extension of Japan during recent years has rendered it advisable in all cases to specify to which Japanese islands contracts apply, and particularly to state whether they include Corea.

EUROPEAN RETROSPECTS AND PROSPECTS OF RUBBER.

IN their review of the India Rubber trade for 1911, Messrs. S. Figgis & Co., London, comment upon the excellent quality and preparation of the plantation rubber shipped to the English market. The readiness of importers to sell at market values, while Brazil attempted to hold up prices, caused a phenomenal demand from consumers for plantation rubber. That deliveries have in England more than kept pace with increased imports is regarded as a healthy and encouraging sign; this feature of the situation being illustrated by the following table:

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	Imports.	Deliveries.	Stock Dec. 31, 1911.
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The extent to which this development has been caused by plantation rubber may be seen by comparing the figures of 1909 and 1911 of English imports from the East and from Brazil:

	Ceylon and Malaya.	Pará and Manáos.
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A satisfactory feature of 1911 has been the increased forward delivery business, many companies having secured advance sales of a good portion of their output. The total world's supply for 1911 (nearly the whole of which was taken by consumption), is estimated at about 88,000 tons, as follows:

WORLD'S SUPPLY AND CONSUMPTION 1911 (ESTIMATED).

EXPORTS.		CONSUMPTION.	
Brazil *tons*	39,000	Europe—	
West Africa	15,000	England *tons*	12,000
East Africa (wild), Penang, Borneo and Rangoon	5,500	Germany and Austria	14,000
		France	8,000
		Russia	8,500
Assam, Madagascar, Central America and Mexico	2,500	Italy	2,000
		Japan and Australia	1,500
		American and Canada	42,000
Plantation	14,200		
Total	76,000		
Guayule	9,200		
Malaysian and extracted from jelutong	2,800		
Total	88,000	Total	88,000

Messrs. Gow, Wilson & Stanton, of London, in their comprehensive report for 1911 emphasize the statement that plantation rubber, which previously ranked second in the English market, has now taken the first place, as regards volume of market business as compared with other grades. The quantity offered at auction in London has risen from 348½ tons in 1906 to 9,699 tons in 1911; the average prices ranging for the six years: 1906, 5*s.* 6¼*d.*; 1907, 4*s.* 9⅝*d.*; 1908, 4*s.* 1¾*d.*; 1909, 6*s.* 7⅛*d.*; 1910, 7*s.* 7¾*d.*; 1911, 5*s.* 0½*d.* It is added that the larger auctions have tended to prevent wild and unwarranted fluctuations in prices. These auction averages have been graphically illustrated in a colored chart.

Messrs. Lewis & Peat, of London, have issued a well-executed chart, showing in graphic form the fluctuations of rubber prices during the last four years, thus illustrating their comprehensive annual report.

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The report of Messrs. Grisar & Co., of Antwerp, mentions the fact that there has been a slight improvement in the quantity of rubber exported from the Belgian Congo. Further development is anticipated as a result of the more liberal tax policy of the government. Antwerp rubber imports for the years 1910 and 1911 were as follows:

	1910.	1911.
	tons.	*tons.*
From the Belgian Congo	3,105	3,176
From other sources	953	1,160
Total tons	4,058	4,336

Imports of plantation rubber from the Far East have shown a marked development in Antwerp. An interesting table shows the comparative rubber importations of the world's principal markets for the years 1903 to 1910. The figures shown for 1909 and 1910 are:

	1909.	1910.
	tons.	*tons.*
United States	31,129	32,916
Liverpool	22,436	27,601
Hamburg	7,500	7,700
Antwerp	4,686	4,059
Havre	3,781	4,458
London	5,435	9,127
Bordeaux	1,988	2,326
Lisbon	3,063	3,424
Total tons	80,018	91,611

The growing importance of Havre as a center of rubber distribution is shown by the table appended to the annual summary of Jean Roederer, of that port. While the figure of imports for 1911 was about 10 per cent. below that of 1910, it exceeds those of 1908 and 1909. Havre imports, which in 1896 were 1,648 tons, had increased by 1911 to 4,008 tons.

Rotterdam arrivals for 1911 were slightly in excess of those for 1910, being reported by Messrs. Havelaar & de Vues as follows:

	1910.	1911.
African *tons*	763	650
East Indian	375	549
Total	1,138	1,199

Amsterdam totals were respectively 60 and 240 tons, the growing importance of that port as a rubber market being thus illustrated.

CENTENARY OF GRISAR & CO., ANTWERP.

THE INDIA RUBBER WORLD acknowledges the lithographic souvenir issued by the well-known firm of Grisar & Co., Antwerp, on the recent occasion of its centenary. This artistic picture shows the various heads of the firm since its foundation in 1811, in conjunction with representations of the various branches of the firm's business; including rubber, gum copal, hides and horns.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE Administration reports of the Department of Science and Agriculture for 1910-11, which have just been issued, contain much valuable information relating to the progress of the rubber industry in the colony, and the results of experiments with different varieties of rubber at the various experimental stations. The returns published in the report of the Board of Agriculture by the Subsidiary Products Committee show that the acreage under rubber at the close of the financial year 1910-11 was only 1,470, the figures for previous years having been 416 acres in 1907-08, 556 acres in 1908-09 and 995 acres in 1909-10. Although these figures lead to the impression that the companies which have introduced capital into the colony have mainly concentrated their attention upon the indigenous product, balata, they bespeak a certain amount of progress, even if small. As a matter of fact, it is possible that there is a margin of error in these figures. No less than 200,000 young plants of the *Hevea Brasiliensis* variety alone have been distributed from the Botanic Gardens during the last few years, exclusive of the distributions of *Sapium Jenmanii* plants, and it is stated by the committee that these alone would suffice to plant 2,000 acres, while stumps and seeds have been imported into the colony in very large numbers by private planters. The lands being planted in rubber, now chiefly Pará rubber, the committee goes on to state, consist largely of newly-empoldered land in the north-western district of the colony, and of forest-covered Crown lands on the islands along the lower reaches of the Essequebo river and in the vicinity of Bartica.

SEEDS FROM SINGAPORE AND PERAK.—AN INTERESTING RESULT.

Mr. F. A. Stockdale, assistant director of science and agriculture, in reporting upon the work of the Botanic Gardens, mentions a somewhat curious circumstance. From 55,176 seeds imported from the Botanic Gardens, Singapore, 38,754 plants were raised, a rate of germination of 70.2 per cent., slightly lower than that usually obtained from the seeds of those gardens. From 200,666 seeds obtained from Perak, however, only 3,900 plants were raised, although in each case the seeds were sown within 24 hours of receipt in the colony. Mr. Stockdale is somewhat at a loss to account for the success of the seeds from the one place and of the almost complete failure of those from the other, but draws attention to the fact that whereas Perak packed 600 seeds into a tin which was hermetically sealed, Singapore packed only 600 seeds to a tin that was not tightly closed, from which facts he recommends that not more than 500-600 seeds should be packed in a tin and that the tins should not be hermetically sealed. It is interesting to observe also that the Perak seeds gave every indication that the weather was wet at the time they were packed.

It is a sign of the increasing practical interest that is being taken in rubber cultivation in the colony that the work in connection with the raising of rubber plants has so increased that the Nursery has had to be extended and that seven leaf-covered houses have been built to provide accommodation for from 45,000 to 50,000 plants.

THE SCIENTIFIC WORK.

Reporting upon the work of scientific investigation Mr. Stockdale says that a careful examination of the *Hevea Confusa* and *Hevea Brasiliensis* in the field revealed the fact that whereas the latter shows distinct longitudinal grooves on the older bark near the level of the ground, the bark of the *Hevea Confusa* is perfectly smooth except for irregularly scattered tentacles raised in the form of minute prickles. It is, therefore, easy to distinguish with certainty in the field the difference between these plants.

While *Hevea Confusa* is said to be the most widely distributed of the local *Heveas*, it gives a product that is weak, plastic and more or less unworkable. A smooth bark raised from an imported seed did not appear to yield as satisfactorily as trees with the back grooved longitudinally, while a *Hevea*, hitherto unknown by the authorities, has been sent from the Potaro district, which gives a more satisfactory product than recently obtained from other indigenous *Heveas*, but it is weak and somewhat plastic. A species of *Sapium* sent from the Boerasirii-Bonasika district, and also found in the northwest district, has been stated by the authorities at Kew to be a new one. It differs from *Sapium Jenmanii* in the inflorescence, and gives a rubber of satisfactory quality. Other new species have been reported which appear to be intermediate between the two.

Professor J. B. Harrison, Director of Science and Agriculture, reports upon the work done at the Experimental Stations. At the Issorova Station in the northwestern district of the colony on the Aruka River, experiments were continued with *Hevea Brasiliensis, Sapium Jenmanii, Castilloa Elastica* and *Funtumia Elastica*. The last two were more or less failures, and while the trials have shown that only Pará rubber and *Sapium* have done well, they have also revealed the conditions under which they will grow well. The trials have shown that both Pará and *Sapium* require exposure to the sun and satisfactory drainage to enable them to flourish. Of trees planted in belts, only those in the center have grown satisfactorily, shaded trees having made irregular and slow growth. "Both Pará and *Sapium* rubbers," says the director, "planted on well-drained, empoldered land, where, during the earlier years of their growth the rubber plants were kept free from weeds by the cultivation of provision crops, such as cassava, tannias, bananas, etc., have grown satisfactorily, and the growth of the former compares favorably with that reported from elsewhere, but the rate of growth during 1910-11 was not so rapid as in preceding years, due doubtless to the excessive rainfall." It is pointed out that the lateritic hill slopes are not proving as suitable for the growth of Pará rubber as the lower lands have done, but that better drainage in later years may lead to better results.

FAILURE OF SAPIUM ON THE DEMERARA RIVER.

At Plantation Christianburg, on the Demerara River, only Pará rubber has shown any promise. The *Castilloas, Maniholt* and *Funtumia* have practically proved to be of no value, while the growth of *Sapium* has been very unsatisfactory. An extension of the experiments to the low hill slopes with both Pará and *Sapium* has led to a more satisfactory growth of the latter. As many as 26 acres are being experimented with at this station.

INTERESTING EXPERIMENTS WITH BALATA.

Very similar results were recorded from Onderneeming School Farm, Essequebo, *Hevea* trees making satisfactory growth, *Sapium* fair growth, *Castilloa Elastica* proving a failure, and *Funtumia Elastica* making little progress. Some interesting experiments were conducted with balata at this station. Some trees were planted and appeared to be growing well.

TAPPING EXPERIMENTS WITH SAPIUM.—DISAPPOINTING RESULTS.

I sent some particulars a little while ago of the tapping experiments at the Bousika *Sapium* reserve. A much more elaborate report appears now from the Director of Science and Agriculture. A series of eight deductions are drawn from the experiments on these trees. They are as follows: 1. The trees yield latex very freely when first tapped and produce rubber of very high quality, not subject to "tackiness." 2. The yields of latex, and consequently of rubber, rapidly fall off during successive periods of tapping. The rubber obtained from later tappings is very subject to the development of "tackiness," and this tendency increases with successive tapping periods. 3. Some, if not all, of the trees, when exhausted by excessive tapping periods, yield latex from which coagulated rubber is not obtain-

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Reporting upon the work of scientific investigation Mr. Stockdale says that a careful examination of the *Hevea Confusa* and *Hevea Brasiliensis* in the field revealed the fact that whereas the latter shows distinct longitudinal grooves on the older bark near the level of the ground, the bark of the *Hevea Confusa* is perfectly smooth except for irregularly scattered tentacles raised in the form of minute prickles. It is, therefore, easy to distinguish with certainty in the field the difference between these plants.

While *Hevea Confusa* is said to be the most widely distributed of the local *Heveas*, it gives a product that is weak, plastic and more or less unworkable. A smooth bark raised from an imported seed did not appear to yield as satisfactorily as trees with the back grooved longitudinally, while a *Hevea*, hitherto unknown by the authorities, has been sent from the Potaro district, which gives a more satisfactory product than recently obtained from other indigenous *Heveas*, but it is weak and somewhat plastic. A species of *Sapium* sent from the Boerasirii-Bonasika district, and also found in the northwest district, has been stated by the authorities at Kew to be a new one. It differs from *Sapium Jenmanii* in the inflorescence, and gives a rubber of satisfactory quality. Other new species have been reported which appear to be intermediate between the two.

Professor J. B. Harrison, Director of Science and Agriculture, reports upon the work done at the Experimental Stations. At the Issorova Station in the northwestern district of the colony on the Aruka River, experiments were continued with *Hevea Brasiliensis, Sapium Jenmanii, Castilloa Elastica* and *Funtumia Elastica*. The last two were more or less failures, and while the trials have shown that only Pará rubber and *Sapium* have done well, they have also revealed the conditions under which they will grow well. The trials have shown that both Pará and *Sapium* require exposure to the sun and satisfactory drainage to enable them to flourish. Of trees planted in belts, only those in the center have grown satisfactorily, shaded trees having made irregular and slow growth. "Both Pará and *Sapium* rubbers," says the director, "planted on well-drained, empoldered land, where, during the earlier years of their growth the rubber plants were kept free from weeds by the cultivation of provision crops, such as cassava, tannias, bananas, etc., have grown satisfactorily, and the growth of the former compares favorably with that reported from elsewhere, but the rate of growth during 1910-11 was not so rapid as in preceding years, due doubtless to the excessive rainfall." It is pointed out that the lateritic hill slopes are not proving as suitable for the growth of Pará rubber as the lower lands have done, but that better drainage in later years may lead to better results.

FAILURE OF SAPIUM ON THE DEMERARA RIVER.

At Plantation Christianburg, on the Demerara River, only Pará rubber has shown any promise. The *Castilloas, Maniholt* and *Funtumia* have practically proved to be of no value, while the growth of *Sapium* has been very unsatisfactory. An extension of the experiments to the low hill slopes with both Pará and *Sapium* has led to a more satisfactory growth of the latter. As many as 26 acres are being experimented with at this station.

INTERESTING EXPERIMENTS WITH BALATA.

Very similar results were recorded from Onderneeming School Farm, Essequebo, *Hevea* trees making satisfactory growth, *Sapium* fair growth, *Castilloa Elastica* proving a failure, and *Funtumia Elastica* making little progress. Some interesting experiments were conducted with balata at this station. Some trees were planted and appeared to be growing well.

TAPPING EXPERIMENTS WITH SAPIUM.—DISAPPOINTING RESULTS.

I sent some particulars a little while ago of the tapping experiments at the Bousika *Sapium* reserve. A much more elaborate report appears now from the Director of Science and Agriculture. A series of eight deductions are drawn from the experiments on these trees. They are as follows: 1. The trees yield latex very freely when first tapped and produce rubber of very high quality, not subject to "tackiness." 2. The yields of latex, and consequently of rubber, rapidly fall off during successive periods of tapping. The rubber obtained from later tappings is very subject to the development of "tackiness," and this tendency increases with successive tapping periods. 3. Some, if not all, of the trees, when exhausted by excessive tapping periods, yield latex from which coagulated rubber is not obtain-

able. 4. In a tapping period the main yields of latex and of rubber are obtained in the first two or three tappings. The tapped parts of the trees run practically dry of latex in from three to six successive periods. 5. No signs of "wound response" have been observed, and in all probability it does not occur in *Sapium Jenmanii* trees of mature age. 6. When the lower parts of the trunk of a repeatedly tapped tree are practically exhausted of rubber-yielding latex the higher parts of the trunk may yield latex in relatively large quantities. While the rubber from the latex of the lower part of the trunk may be very tacky or more or less resinous and coagulate with difficulty, that yielded by the upper parts is of very good quality. 7. In practical tappings of the *Sapium Jenmanii* trees of mature age it is advisable to tap as great lengths of their trunks as possible at one operation and not to confine the tappings to the lower parts of them. 8. The wounds made in the bark of the trees during tapping have been found to heal very slowly and unsatisfactorily.

SOME INTERESTING FIGURES.

Some figures will illustrate the foregoing. The average yields of dry rubber per tree during the years 1908 to 1911, from trees over 30 inches in girth at three feet from the ground, were as follow: September, 1908, 8.33 ounces; October, 1909, 5.16 ounces; March, 1910, 1.83 ounces; August, 1910, 1.93 ounces; November, 1910, 1.08 ounces. "The proportion of rubber in the latex of *Sapium Jenmanii* appears to vary considerably," says the director. "The latex obtained in 1908 yielded about 18 per cent. of dry rubber; that of trees tapped for the first time in 1910 contained 15 per cent.; while that yielded by trees which had been subjected to tappings during several periods contained about 11 per cent." The attention given to the subject by the department, aided by the Bacteriological Department, has not resulted in an explanation of the production of "tackiness" in *Sapium* rubber. The trees are now to be given a prolonged period of rest from tapping in the hope that they will recover the power of yielding—commercially—valuable rubber in fair quantity. The question of clearing more of the land at the Reserve and planting it with Pará is under consideration. Some years must elapse before definite results are forthcoming, but when they are they should be instructive. *Sapium*, however, appears to be under a cloud at the present time.

RETURNS OF THIRTY-FIVE PROMINENT ENGLISH RUBBER PLANTING COMPANIES.

AS illustrating the progressive rate of increased yield of eastern rubber plantations, a table (recently published by the "Gummi-Zeitung"), summarizing the returns of yields during the last five years, of 35 prominent English rubber planting companies, is of interest. It is, moreover, in harmony with the returns of planting by 43 companies, quoted by THE INDIA RUBBER WORLD in November, 1911 (p. 66), which in 1905 had shown 1,401,215 trees and which number had been successively increased to 13,377,928 in 1911, more than a nine-fold increase in six years. The subjoined table shows an increase in the yield of 35 companies (including 19 which appear in both returns), from 1,186,450 pounds in 1907, to 9,451,459 in 1911, or an eight-fold gain in five years; being practically on the same basis of development as in the other case.

In the later table an interesting comparison is made between recent 1911 estimates and results. The total yields of these 35 companies for 1909 had been 3,759,712 pounds and for 1910 6,931,434 pounds. The estimates for 1911 aggregated 8,255,900 from 29 companies, representing for the 35 about 9,250,000, while the actual results last year for 35 companies aggregated 9,451,459 pounds.

While these returns only deal with about one-sixth to one-fifth of the total number of far eastern companies, they include the most important concerns; producing, as has been estimated, a large share of the total output.

FIVE YEARS' YIELDS OF PROMINENT ENGLISH RUBBER PLANTING COMPANIES.

Company.	Yield. 1907. Lbs.	Yield. 1908. Lbs.	Yield. 1909. Lbs.	Yield. 1910. Lbs.	Estimate. 1911. Lbs.	Yield. 1911. Lbs.
Harpenden (Selangor) Rub. Co..	.....	5,818	21,153	108,341	200,000	220,841
Kapar Pará Rubber Co.	.....	.....	24,023	169,610	335,000	330,890
Sungei Kapar Rubber Co.	22,127	37,150	114,970	225,462	300,000	338,400
Seafield Rub. Co.	.....	.....	43,746	201,405	300,000	300,472
Sungei Way (Selangor) Rub. Co.	.....	.....	13,594	71,936	175,000	178,396
Linggi Plantations	110,740	284,873	545,390	878,754	1,000,000	1,064,500
Consolidated Malay Rub. Estates.	63,615	111,585	215,893	338,655	380,000	395,850
Damansara (Selangor) Rub. Co..	57,376	124,610	203,007	314,466	400,000	390,726
Highlands & Lowlands Pará R. Co.	193,507	222,287	341,986	511,724	575,000	637,449
Labu (F. M. S.) Rubber Co. ...	24,582	24,127	86,573	203,696	325,000	265,250
Edinburgh R. Estate (Selangor)	.....	.....	29,264	82,876	119,700	122,123
Shelford R. Estate	11,584	23,828	28,963	103,104	150,000	142,200
Sungei Choh Rubber Estate Co..	.....	2,258	10,200	52,025	.....	80,341
P. P. K. (Ceylon) Rubber Estates.	14,800	29,200	54,474	62,500	80,000	80,441
Batu Caves Rubber Co.	4,312	16,585	45,769	173,127	250,000	258,000
Batu Tiga (Selangor) Rub. Co..	6,365	7,978	35,500	96,432	140,000	160,858
Selangor Rub. Co.	120,524	189,979	326,654	451,511	.....	469,759
Seremban Rubber Estate Co.	109,054	134,848	228,626	384,440	430,000	364,188
Ceylon (Pará) Rubber Co.	.....	.....	.....	11,457	.....	64,470
Golconda Malay Rubber Co. ...	18,722	35,103	96,290	178,315	200,000	206,011
Sunnygama (Ceylon) Tea Est. Co.	1,500	2,608	20,825	97,719	150,000	203,600
Ulu Rantau Rubber Estates Co.	.....	.....	5,503	65,251	.....	137,420
Klanang Produce Co.	.....	18,886	39,729	93,700	150,000	167,245
Kuala Selangor Rubber Co. ...	.....	.....	.....	40,027	170,000	168,692
Ledbury Rubber Estates	8,765	22,597	65,979	124,178	175,000	182,440
St. George Rubber Estates	.....	5,719	23,887	63,011	150,000	140,040
General Ceylon R. & Tea Estates.	19,815	26,283	38,570	88,312	.....	179,910
Bandarapola Ceylon Co.	.....	.....	4,314	37,528	75,000	90,050
Pataling Rub. Estates Syndicate.	58,064	80,922	152,000	323,065	382,500	334,082
Anglo Malay Rubber Co.	224,778	350,688	517,550	673,132	750,000	772,107
Golden Hope Rubber Estate	5,591	15,238	51,420	80,940	114,200	109,655
Lanadron Rubber Estates	97,203	181,156	249,247	371,816	400,000	375,848
Ceylon Tea Plantations Co.	13,426	25,738	54,548	118,626	200,000	240,120
Langkat Sumatra Rubber Co. ...	.....	4,131	12,520	45,090	.....	99,656
Panawatte Tea & Rubber Estates.	.....	1,152	32,545	89,204	180,000	181,529
Total	1,186,450	1,985,347	3,759,712	6,931,434	8,255,900	9,451,459

CONTINUED INCREASE OF EASTERN RUBBER OUTPUTS.

SO FAR as received, the January, 1912, reports indicate a continued increase of Malayan output. The Scottish Malay Rubber Co., Limited, harvested 9,519 pounds, against 5,237 for January, 1911. The Riverside (Selangor) Rubber Co., Limited, reports 10,221 pounds, against 2,820 pounds for the same month last year. Returns from 11 other leading companies for January, record in the aggregate 277,806 pounds, as compared with 170,123 pounds for January, 1911.

Ceylon companies also make favorable reports. The Bambrakelly Tea and Rubber Co., Limited, reports for January, 1912, an output of 7,014 pounds, while the figure of the ten months ended January was only 39,025 pounds. The Sapumalkande Rubber Co. records an output of 15,748 pounds, against 6,257 for January, 1911.

Some Notes on Rubber Planting.

RUBBER PLANTATIONS IN JAVA.

ACCORDING to a recent German consular report, there are about 84,902 acres in Java devoted to private rubber cultivation, in addition to 21,194 owned by the government. Of the private holdings about 50 per cent. are in *Hevea*, 13 per cent. in *Ficus* and 37 per cent in these two varieties, combined with *Manihot Glaziovii* and *Castilloa elastica*.

The area belonging to the government (21,194 acres) is planted as follows: *Ficus*, 18,903; *Hevea*, 2,151; *Castilloa*, 140. Native plantations are not included in this list. The government has likewise about 2,595 acres planted with gutta-percha trees.

JAVA RUBBER PLANTATIONS, LIMITED.

ACCORDING to the report presented at the recent meeting of the above company (registered in 1907), the rubber area in that year consisted of 220 acres *Ficus elastica*, and 100 in *Hevea Brasiliensis*. There are at present 2,201 acres in rubber, of which 1885 are in Pará rubber. Tapping will be commenced early this year, when it is estimated that 8,000 trees will be available for that purpose.

MALANG RUBBER ESTATES, LIMITED (JAVA).

Registered March, 1910. According to latest reports, the plantings on the above estates include: *Hevea Brasiliensis*, 138,000 trees; Castilloa, 20,000 trees. The crops are reported to be in a healthy state and to warrant expectations of a steadily increasing revenue.

DJASINGA RUBBER & PRODUCE COMPANY, LIMITED (JAVA).

Registered June, 1910; 41,352 acres, of which 7,010 now cultivated, including 3,037 under rubber. Production, 1911 to end of October, 7,237 pounds. Expect soon to put up rubber factory.

UNITED SERDANG RUBBER PLANTATIONS, LIMITED (SUMATRA).

Registered July, 1907; crop last business year, 218,530 pounds; estimates for current year, 433,000 pounds.

TANDJONG RUBBER COMPANY, LIMITED (SUMATRA).

According to the report of the above company, the trees have reached the producing stage before the period anticipated, which had originally been 1913. The planted area is now 4,521 acres, from which the crop for 1911 is estimated at 50,000 pounds, with an increase for 1912 to 140,000 pounds and further considerable development in succeeding years.

SINGAPORE PARA RUBBER ESTATES.

The crop for the year ended June 30 was 64,157 pounds of dry rubber, while that of 1911-12 is estimated at 120,000 pounds. New coagulating and rubber stores have been built, and considerable progress has been made with the erection of the new rubber factory and the installation of the machinery to be there operated.

WHY PLANTATION RUBBER SELLS.

In commenting upon market reports from London, the "Malay Mail" remarks: "During six weeks . . . some 1,600 tons of plantation rubber have been purchased in Mincing lane, whose value must be somewhere near £1,000,000. That the increased supplies of Middle East produce have been so readily absorbed is explained by the fact that 'the trade' wants plantation rubber, and will pay higher prices than the current value of hard Pará. Plantation material has now been thoroughly tried by manufacturers and has not been found wanting. It is believed to be more suitable, and probably for many purposes more economical."

CATCH-CROPS IN CEYLON.

In dealing with the above question, the "Ceylon Observer" states that the practice of growing catch-crops for four or five years, until the rubber attains the producing stage, is little known in Ceylon, although it has been adopted by some Malayan estates. This difference is due, it would seem, to the idea prevalent at the former point that catch-crops materially retard the growth of the rubber, while that system (although in some instances bringing in an appreciable return), has not, as a rule, been depended upon as a source of revenue during the unproductive period, provision having usually been made by the various companies for that purpose, as part of the original investment.

SELLING RUBBER FOR NEXT YEAR.

LONDON advices report that forward contracts for plantation rubber have been made at 4*s.* 4*d.* ($1.05½) for delivery during the first nine months of 1913. The company making this sale is the Lavant Rubber and Tea Co., Limited; owning 1,124 acres in the Kegalla district, Ceylon, 841 acres of which are planted with about 100,000 Pará rubber trees. The blanket crepe turned out by the company has always been appreciated in the London market for its quality.

STRAITS AND JAVA RUBBER INDUSTRIES.

Mr. C. E. Welldon, the former Maskeliya and Dimbula planter, who has been making a tour of estates in the East, has expressed the view that in the Straits everything was very flourishing, the rubber being in excellent condition and the necessary Chinese and other labor being available. The climate, in his opinion, contributed to give rubber in that quarter a better chance than in Ceylon or Southern India.

While the Chinese are satisfactory workers, they are, he considers, more expensive than Tamils. They are, however, excellent tappers, and their capacity to do heavy work makes their acquisition desirable. He was surprised to find in the Straits that every man had his own method of working.

Sumatra he considered as ranking next to the Straits for rubber, but on the whole he thought Java, with its crops of rubber, tea and coffee, the better place for general progress.

As regards rubber, a good deal of it had been planted at too high an elevation, but where it had been planted at a suitable elevation it would give good results, but not perhaps so good as the Straits or Sumatra. The Dutch planter, though somewhat slow, was generally a very capable man. Many of them had passed through agricultural colleges in Holland, while others had passed through engineering schools.

Mr. Welldon said he could not help feeling that it would not be a bad thing for young Englishmen to go through similar courses of training before taking up planting. He believed it was better for a planter to start life at 21 than at 18 or 19 years of age, and the previous two years or so would be well filled in an agricultural college, an engineering school or even a London office.

BUYING STOCK IN ASBESTOS COMPANIES.

If any of our readers should have contemplated the purchase of stock in any of the following four asbestos companies: North American Asbestos Mines, International Asbestos Mills and Power Co., Northwestern Asbestos Mills Co., or Wyoming Consolidated Asbestos Co., all located in Denver, Colorado, it might profit them to read the somewhat detailed description of these enterprises given in the financial department of the February issue of "Munsey's Magazine."

Obituary Record.

HENRY C. MORSE.

THE death of Henry C. Morse, formerly treasurer of the Revere Rubber Co., occurred on the evening of February 24, at his home on Commonwealth avenue, Boston, of pneumonia. Mr. Morse was born in Norwood, Massachusetts, January 31, 1838. He occupied the office of treasurer of the Revere Rubber Co. for 20 years, retiring from that position and from active business 10 years ago. The funeral was held from

HENRY C. MORSE.

his residence on the afternoon of February 27, the interment taking place at Forest Hill Cemetery. A more detailed appreciation of his life will appear in our April issue.

RESOLUTIONS BY THE RUBBER CLUB OF AMERICA.

It is with deep sorrow that we learn of the death of our esteemed fellow member, Henry C. Morse, the first president of our club, from its inception in April, 1900, to April, 1901, and for many years one of our honorary vice-presidents—a leader in the development of the rubber manufacturing industry in this country. His unique personality, his faithfulness as a friend, his wisdom as a counsellor will for many a year be remembered by all who were privileged to be counted among his business associates and friends. The Rubber Club of America endeavors, however inadequately, to express, by these resolutions, a deep sense of loss; and it is therefore

Resolved, That in the death of Henry C. Morse the Rubber Club of America and the rubber industry of this continent have suffered an irreparable loss.

Resolved, That we extend to his family our appreciation of his noble character, and our heartfelt sympathy in their great bereavement.

HENRY C. PEARSON,
ELSTON E. WADBROOK,
GEORGE P. WHITMORE,
Committee on Resolutions.

ALEXANDER HENDERSON.

ALEXANDER HENDERSON, a director of the Manhattan Rubber Manufacturing Co. (Passaic, New Jersey), died on February 7, of pleural pneumonia at the age of 38.

ALLISON M. STICKNEY.

ALLISON M. STICKNEY, president of the Wellman Co., Medford, Massachusetts, died at his home in that city on February 13, of pneumonia. He had been in a poor condition of health for some time, but had continued his business activities until pneumonia attacked him.

He was born in Lowell, Massachusetts, in 1847, son of Jonathan Gage Stickney, a noted American inventor, who was one of

ALLISON M. STICKNEY.

the pioneers in the development of rubber manufacture in Europe. Because of his father's connection with European enterprises the son received much of his early education in London and Menin, Belgium, where he acquitted himself with marked credit. He early showed that, like his father, he had pronounced inventive ability, and while a very young man he perfected the Wellman sole-cutting machine, making it so efficient that it was adopted in rubber shoe factories all over the world.

The wide use of this machine often carried Mr. Stickney abroad, and during one of those trips, in 1905, he sent a series of letters to THE INDIA RUBBER WORLD, covering various phases of rubber manufacture in Europe, which attracted a great deal of attention, not only among our American readers, but among rubber people on the other side. The well-known German publication, "Gummi-Zeitung," referred to these letters in a very complimentary way, and quoted from them quite freely.

It was not simply, however, as the successful inventor and manufacturer of highly important rubber-making machinery that Mr. Stickney's career was notable. He was equally noteworthy for his patriotism. When, with his father, he returned to this country as a boy of sixteen, the Civil War was raging. He immediately enlisted in the Pennsylvania Volunteer Cavalry and served in the Union Army until the end of the war, then joining the navy and remaining in that service for a year. At the expiration of that time he became interested in mechanical invention, as already described. He always maintained a most active interest in the G. A. R., being at the time of his death a past commander in a local post at Medford, and a past national department official. He also was prominent in public interests in and about Medford, and during the last ten years of his life served as chairman of the Medford Water and Sewers Commission.

The funeral services, which were of a private character, were held on Saturday, February 17, at his late residence in Medford. The pall bearers were intimate friends and employes of the Wellman Co. He is survived by a widow and two daughters, Virginia and Marion, both very prominent in Medford musical circles.

DEATH OF COLONEL J. W. LINK.

The death occurred here early in January of Colonel J. W. Link, who was responsible for the flotation of the Consolidated Rubber & Balata Estates, Limited, and who was visiting the colony in order to submit proposals to the government concerning railway construction. Colonel Link was an American, coming from an old Virginia family. He was a cadet at West Point when the civil war broke out, and he joined the Northern Army, in which force he rapidly attained the rank of Colonel. At the conclusion of the war he engaged in engineering work in the Amazon Valley and later he joined the German forces and went through the Franco-German war of 1870. Ultimately he became a naturalized British citizen.

He was ultimately connected with several large business concerns, including the Rio de Janeiro Docks. Later he turned his attention to the industrial possibilities of this country, and he was undoubtedly one of the first to realize that the balata industry of the colony was capable of considerable development. Eventually the Consolidated Rubber & Balata Estates, Limited, emerged as a result of his activities, the intention being to pay dividends out of balata while rubber was being grown. The early company, the Balata & Rubber Corporation, was merged with the larger company, together with the licenses of Messrs. Garnett, Davison, McKinnon and Downer, which produce nearly four-fifths of the total output. Up to the present, while it has been found possible to pay dividends, little appears to have been done towards establishing a rubber industry.

It was the transit difficulty besetting the balata industry that impressed upon Colonel Link's mind the need of a railway, but it was in the early days, when he was engaged in the Amazon Valley, that he first conceived the possibilities of making a railway from Georgetown to Manáos pay—and Manáos has grown since those days. Colonel Link formed a syndicate of English capitalists and drew up proposals which were submitted to the local government in 1908. Among the major demands were land grants of ten square miles in alternate blocks and a guarantee of interest of 3½ per cent. The governor of the colony, Sir F. M. Hodgson, K. C. M. G., was not impressed by the soundness of the proposal, and in consequence of his representations it was rejected by the Secretary of State for the Colonies, although public opinion in the colony supported the project. Public opinion in the interval since elapsed has strengthened and solidified rather than otherwise, and it was with the object of presenting modified proposals that Colonel Link was making this recent visit to the colony.

It is also said that Colonel Link was arranging for the combination of balata licenses of Surinam and of this colony for the purpose of simplifying the organizations and protecting the industry as a whole. Such a plan, while ambitious, would have had far-reaching and doubtless valuable results.

NEW TRADE PUBLICATIONS.

THE booklet recently issued by The B. F. Goodrich Co., under the title "Best in the Long Run," serves the purpose of making the reader acquainted with the tires which have rendered that concern famous, from the raw material to the finished article, while at the same time illustrating the salient features presented by the factory itself.

The center of the booklet is taken up by a graphic representation inside a monster tire, of the plant, which is a little world in itself of men, buildings, equipment and ideas; the fact being given prominence that an automobile tire large enough to encircle it would measure nearly two miles in circumference.

Starting from the primeval forest, the progress of the rubber is followed until it is associated with the fabric in the triple capacity of covering, protecting and binding; becoming, in fact, as it is remarked: "The rubber gristle to the fabric backbone of the tire." An interesting chapter is devoted to showing "How a Cotton Backbone Is Reinforced by Goodrich Methods." To fitly describe this attractive booklet with its artistic illustrations would be to tell the story of Goodrich tires, which purpose is best effected by writing for a copy.

In another booklet entitled "Nine Prophets and a Host of Truly Wise Ones," the results are recorded of the recent post card investigation of the conditions reported by 35,600 tire users. Of the answers received 15,300 were from Goodrich users and gave Goodrich tires an average life, before blow-out or replacement, of 5,300 miles. To tire users this little compendium specially appeals by its practical character.

Catalogue No. 2 of the Hewitt Rubber Co., Buffalo, includes complete lists of the mechanical rubber goods made by that company. Its perforated mats and kindred articles are shown in colored illustrations.

That the motorcycle, as a small automobile, requires a small automobile tire for practicability and real service, is the lesson inculcated by the booklet "Motor Cycle Tires" issued by the Goodyear Tire & Rubber Co., Akron. Hence much that has been and can be said regarding auto tires is more or less applicable to the other description. The Goodyear concern is equipped for making 600 motorcycle tires daily and claims a largely increased trade.

Tires can double or halve the mileage and efficiency of motor trucks, affecting the wear of all parts, however the truck is propelled. Arguing from this standpoint, the Motz Tire & Rubber Co., of Akron, has issued a neat booklet on "Multiplying Truck Efficiency," advocating the use of "Motz Cushion Tires" for light delivery cars and of "Motz Solid Truck Tires" and demountable rims for heavy duty trucks.

In the development of the Spring tire, the recently incorporated American Spring Tire Co., of Chicago, claims to have begun at the foundation (or rather the inside), and built outwards, replacing the pneumatic tube by a series of steel springs, made up in sections conforming to the shape and size of the outside tire or rubber shoe covering. When the latter is placed in position, the appearance of a regular pneumatic tire is said to be obtained, with the avoidance of the troubles that accompany the air-filled tire.

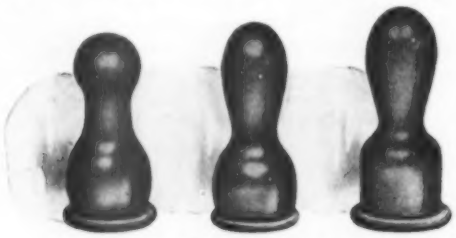
The February issue of "Rubber," the house organ of the Beacon Falls Rubber Shoe Co., has a number of snappy articles, of interest apart from their moral, which is thus editorially expressed, "Say 'Top Notch' to the next Beacon Falls salesman you meet and see what he does." A large sheet of illustrations shows the newest styles of footwear in the various Beacon Falls brands, starting off with "Top Notch." Selections and mail orders being thus facilitated.

A hundred page catalogue, issued by J. C. Bailey & Co., of Boston, might properly be called a museum of rubber goods. It exploits such a wide variety of articles made entirely or in a large part from rubber. It runs the gamut from the "Bailey Wont-Slip Tread Tire" to rubberized cuffs and collars that can be laundered with a damp cloth. It contains at least a dozen different articles that everybody has to use. It shows all kinds of brushes, massage rollers, exercisers, gloves, rubber heels, belts, bandages, hot water bottles—not only the usual kind, but special bottles for the throat, for the ear, and for the other parts of human anatomy—soft and hard rubber syringes, rubber matting, tobacco pouches, atomizers, mattresses, chair tips, clothing, shoes. It certainly shows a most comprehensive collection of rubber goods.

New Rubber Goods in the Market.

PURE GUM TRANSPARENT NIPPLES.

HERE are three illustrations of the Wilkie Nipple. It is made of pure gum and is quite transparent, the manufacturers claiming that this is the only nipple made in this country that can be so described. It is practically identical with the transparent



THE WILKIE NIPPLES.

imported articles. These are made with the "Non Colic" ball top. [The Wilkie Rubber Manufacturing Co., Lynn, Massachusetts.]

SECTIONAL TRUCK TIRES.

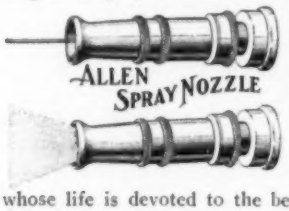
THE sectional truck tire seems to be growing in favor. It certainly has one very obvious merit—that the injury of one section does not impair the whole tire, but is confined solely to that

one section. The two cuts show the Victor sectional truck tire—one as it appears on the wheel, the other as shown on a small arc of the rim. These rubber sections have steel rods molded in them projecting one-quarter of an inch at the ends. These projections fit into a steel locking bar which is clamped down to the

rim and holds the sections tight. They are only five-eighths of an inch apart, so that there is no observable vibration in the operation of the truck. The chief advantages of the Victor sectional tire are efficiency—as indicated by their guarantee—and simplicity. If by any chance a section of the tire should be destroyed while on the road, in a few minutes' time and with no tools required but a wrench the driver can put in a new section and thus become his own repairer. The further claim is made that sectional tires take a better hold on the ground and thus require less power for propulsion.

A NEW GARDEN SPRAY NOZZLE.

THE Allen Nozzle is the latest development in the evolution in garden spray nozzles. It gives a strong, straight stream with a number of varieties of sprays, ranging from one of a generous character to a very fine mist. It is simple and easy to operate, not likely to get out of order, is sightly in appearance and ought certainly to take with the suburbanite, a large part of whose life is devoted to the beautifying of his lawn. [The W. D. Allen Manufacturing Co., Chicago, Illinois.]



A GUN RECOIL PAD.

A GOOD many men would enjoy gunning much more than they do if it were not for the "kick." Here is a device for stopping the gun from kicking—or at least from kicking too much. It is a gun recoil pad, which goes on where the stock of the gun presses against the shoulder and absorbs at least a large part of the

THE AKRON RECOIL PAD.

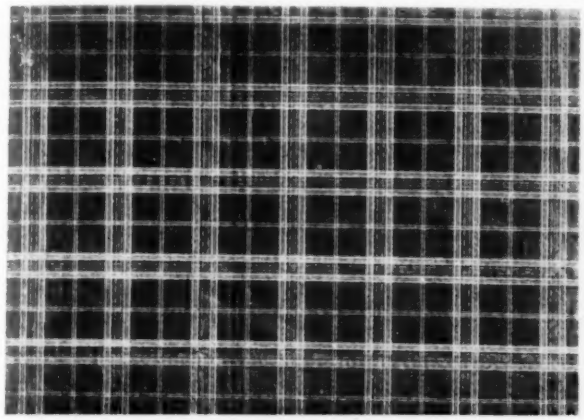
jar. The pad proper is made of rubber that is not only resilient in itself, but has a corrugated finish, each of these facts contributing to minimize the recoil. Over the pad goes a leather cover which saves it from exposure and enables it to be attached snugly to the gun. [The B. F. Goodrich Co., Akron, Ohio.]

A PHOTOGRAPHIC RUBBER STAMP.

A company, very recently incorporated in New York, intends to put on the market a rubber stamp that will accurately reproduce anyone's photograph. It is in other words a half-tone cut made of rubber. The stamp is contained in a little metal case having an ink pad and three or four rubber rollers for spreading the ink uniformly over the face of the stamp. Equipped with one of these little pocket outfits a person fond of seeing his features, can stamp his portrait on his letter-heads, bill-heads, books, or in any other place he may desire. [Photo Type Rubber Stamp Co., No. 277 Broadway, New York.]

PRINTING PATTERNS ON RUBBER SURFACES.

Edward A. Williams, Providence, Rhode Island, has invented a process of printing patterns—checks, plaids or any other pattern that any one might desire, as long as it doesn't require more than three colors—directly upon a rubber surface. This means that rubber clothing, for instance, can be made of two thicknesses —one of fabric and one of rubber—and still have a pattern printed on both sides.



PATTERN PRINTED ON RUBBER SURFACE.

The accompanying illustration shows a rubber surface printed by this process. The process is controlled by Starkweather & Williams Co., 47 Exchange Place, Providence, Rhode Island.

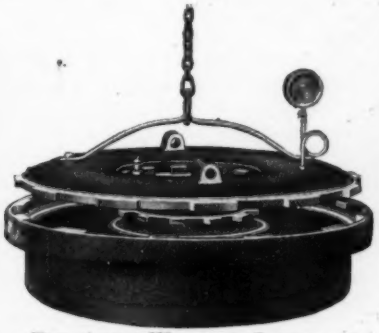
WHAT CONGRESSMAN WEEKS REALLY SAID.

THE report, published in our February issue, of Congressman Weeks' able address on the Monetary Problems of the United States, delivered at the Rubber Club dinner in January, was made for us by a stenographer of much experience in this sort of work, but evidently toward the last of that address his mind wandered and his pothooks got mixed, because in the concluding paragraph he made an error thrice repeated that materially changed the significance of that paragraph. Where the speaker said *panic* the stenographer wrote *bank*. If any of our readers were somewhat mystified by that final paragraph, they will find its meaning rendered much more intelligible by the following corrected reproduction:

"If what has been proposed (by the Monetary Commission) is done, we need have no more currency *panics* in this country. We will have financial depressions, as we always have had and always will have as long as business men over-expand and have to contract. Those will come at certain periods, but the currency *panic* will be a thing of the past. A financial *panic*, such as we have known, will be a thing of the past. Labor will not be thrown out of employment; capital will not be idle; the enormous losses which we have had as a result of the almost numberless panics since the Civil War, will be things of the past, and we will go on in the even tenor of our way, doing business as do our commercial rivals in foreign countries, being able to compete with them, because we have similar or equally good tools to compete with."

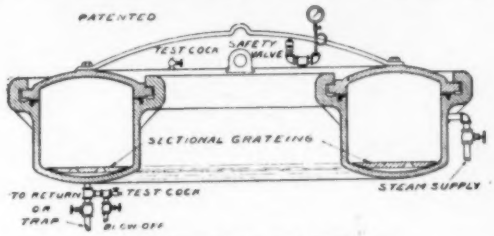
A QUICK-OPENING TIRE KETTLE.

THE average tire repair shop doesn't need and cannot afford a large vulcanizer. It costs too much money, takes too much room and can only be used, in the ordinary small repair shop, by allowing tires to accumulate and, of course, the owner of a tire doesn't care to wait for tires to accumulate. If he wants a shoe repaired, he wants it right away.



THE AKRON-WILLIAMS RETREADING VULCANIZING KETTLE.

Here is where the small repair kettle, shown in the illustration, becomes useful. This is large enough to take in a single casing 37 inches by 5½ inches, and where the casings are 36 inches x 4 inches, or smaller, it will accommodate two at a time. It occupies comparatively little room and is economical to handle. The cover is finished around the edge, as will be seen in the cut, with projecting lugs. When the cover is put on the kettle a little turn brings these lugs under corresponding lugs cast in the top of the



CROSS SECTION OF THE KETTLE.

kettle. When the steam is turned on the special wedge-shaped rubber packing keeps the kettle absolutely tight. This is done without a single bolt or nut to tighten. When the casing is cured, the steam is shut off and a little turning of the cover releases the lugs and the work is done. [The Williams Foundry and Machine Co., Akron, Ohio.]

The accompanying illustration shows a gauge for measuring sheet rubber that will allow extremely close gauging. The face of the dial, which is divided by lines for each one-thousandth of an inch, gives the measurement. It can be set at any time, so as to start at zero; therefore very accurate readings can be taken. It can be put to a very great variety of uses not possible with others. This gauge has a capacity of from 250 to 300 thousanths, and for ordinary uses will measure one-quarter of an inch or a little over by thousandths. [The Hoggson & Pettis Manufacturing Co., New Haven, Connecticut].

A GAUGE FOR MEASURING SHEET RUBBER.

SOME NEW AND ATTRACTIVE APSLEY LASTS.

THE ingenuity of the leather footwear manufacturers, which manifests itself in a continual new variety of shapes and lasts, compels the rubber manufacturer, if he does not wish to be left behind, to make rubbers which will fit the leather shoes. The Apsley Rubber Co., Hudson, Massachusetts, has the reputation of

MEN'S NOBBY LAST.

keeping up with anything the leather footwear makers can produce in the way of lasts. This company has its own last plant, so

MEN'S MILITARY LAST.

that it can equip its factories with new shapes, with the least possible delay. Here are a number of its latest lasts; side views and

MEN'S HUMP LAST.

sole views. Some look a little freakish, but when leather shoes take a freakish turn, rubber shoes must follow:

WOMEN'S NOBBY LAST.

The Apsley Rubber Co. claim to be leaders in style. They own and operate a last factory for their exclusive use, and are in position to be ahead in producing styles to fit the new fashions in footwear.

IT REPAIRS ANYTHING IN THE TIRE LINE.

Miller's improved adjustable, sectional vulcanizer will, according to its manufacturer, repair anything in the tire line. When furnished complete it includes boiler, gas burner, tread moulds for bicycle tires, motorcycle casings and automobile casings up to 5 inches in diameter; with various other molds. This vulcanizer will repair a 15-inch section at one heating in any size of bicycle, motorcycle and automobile tire. The great variety of sizes that can be molded by this device is due to the fact that the back side of the vulcanizer is stationary and

MILLER'S IMPROVED VULCANIZER.

the front side is movable, so by tightening or loosening the two hand wheels shown in the accompanying cut, the cavity can be closed entirely or opened up to the size of the largest automobile tire. It is possible to heat only one side of this vulcanizer, when this is desired, by the simple removal of the washer with a hole in it and the substitution of a flat disc washer without a hole. This admits the steam to only one side of the vulcanizer. [Charles E. Miller, Anderson Rubber Works, Anderson, Indiana.]

REVISION OF NAVY SPECIFICATIONS.

THE Manufacturers' Sub-Committee dealing with the above subject, following up its previous action, met in New York on February 13, when further progress was made in the proposed revision of Navy Specifications affecting rubber, as well as of methods of testing. Recommendations and suggestions were prepared, which will, it is understood, be submitted to the government at an early date.

An American Consul in the United Kingdom sends in a consular report (No. 8,049) to the effect that a firm which weaves asbestos fiber in cloth wishes to get into correspondence with American producers of the fiber.

The earliest use of asbestos of which there is any record consisted of spinning this substance into a non-combustible thread. It is stated that asbestos thread can now be spun so fine that 32,000 feet can be made out of a single pound.

News of the American Rubber Trade.

THE NEW YORK RUBBER CO. ELECTS OFFICERS.

At the annual stockholders' meeting of the New York Rubber Co. (New York), held January 30, the following trustees were re-elected for the ensuing year: John P. Rider (chairman of the board), John Acken, William H. L. Lee, Rufus A. Brown, Henry Montgomery, Edward S. Woodward and H. F. Hering.

At a meeting of the board of trustees, held January 31, the following officers were re-elected for the current year: John Acken, president and treasurer; Henry Montgomery, vice-president and secretary, and H. F. Hering, second vice-president.

THE SEAMLESS RUBBER CO. INCREASE CAPITAL.

At the annual meeting of The Seamless Rubber Co. (New Haven, Connecticut), held January 17, the officials of the company were authorized by the stockholders to issue preferred stock to the amount of $500,000. Practically all of this authorization has been subscribed and paid for.

THE REPUBLIC RUBBER CO. TO ENLARGE PLANT.

As soon as the weather will permit, work will be begun on the new addition to the main shop of the Republic Rubber Co., Youngstown, Ohio, which will be five stories high and 80 by 400 in size. When all of the improvements are completed the shop force will be nearly trebled.

The officers elected for 1912 are as follows: President, Thomas L. Robinson; first vice-president, L. J. Lomasney; second vice-president, L. T. Peterson; secretary, C. F. Garrison; treasurer, M. I. Arms. President Thomas L. Robinson is chairman of the executive board.

CENTRAL CITY RUBBER CO.

The annual meeting of the stockholders of the Central City Rubber Co., Syracuse, New York, was held in that city on January 22. The directors elected for the ensuing year were: David A. Gould, John R. Graham, A. Park Sager and H. F. Smith. The board elected officers as follows: David A. Gould, president; A. Park Sager, vice-president; and John R. Graham, secretary and treasurer. The company is contemplating the issue of $25,000 additional preferred stock.

CHICAGO RUBBER CLOTHING CO.

A meeting of the board of directors of the Chicago Rubber Clothing Co., Racine, Wisconsin, was held January 16. A dividend of 10 per cent. was declared, to be paid forthwith. A motion was passed that the thanks of the board of directors be tendered to G. G. Bryant, secretary, and E. C. Laughton, treasurer, for the very successful and satisfactory manner in which they had managed the affairs of the company during the past year. The annual stockholders' meeting of the company was held on January 27 and the following officers were re-elected: Hon. Charles H. Lee, president; E. V. Laughton, treasurer; and G. G. Bryant, secretary and manager.

THE WEST BOYLSTON CO. ENLARGES ITS PLANT.

The West Boylston Manufacturing Co., Easthampton, Massachusetts, which manufactures automobile tire fabrics, intends soon to begin the building of an addition to its plant, consisting of an added story to No. 4 mill, 326 feet x 117 feet; and a new three story mill, 272 feet x 117 feet, with a four-story ell-building 140 feet x 120 feet. The addition is planned to increase the capacity of both the spinning and weaving departments.

TYER RUBBER CO. TO BUILD A NEW FACTORY.

The Tyer Rubber Co., Andover, Massachusetts, has purchased a plot of land not far from its present plant, and is planning to build a complete new factory. This new factory will consist of a series of buildings (to cost $250,000), the main one of which will be 275 feet long, 60 feet wide, and four stories high. The new factory will be so constructed that it can be added to from time to time, as the demands of the business may necessitate. The company expects to remove its press room and box-making department from the present factory to the new one, and to take up other lines of manufacture—particularly the making of automobile tires on an extensive scale. The druggist sundries department will also be materially enlarged. The company thought it better in view of its increased requirements to build a new plant, rather than to attempt to increase the size of its present one. When the new plant is complete, there will be 350,000 square feet of floor space devoted to the manufacture of "Tyrian" rubber goods.

THE WILKIE COMPANY IN A NEW LINE.

THE Wilkie Rubber Manufacturing Co., of Lynn. Massachusetts, are manufacturing a new line of druggists' sundries in molded and dipped goods. This is in addition to their old line of mechanical rubber goods in hard and soft rubber and their large business in rod and tubing.

The officers of the company are: Frank C. Spinney, president, of Faunce & Spinney, Lynn, Massachusetts; Philip K. Parker, treasurer; Harvey F. Mitzel, general factory manager and superintendent. The directors are: Jas. M. Marsh, of Geo. E. Marsh Co., Lynn, Massachusetts; Jas. P. Phelan, of Jas. Phelan & Sons, Lynn, Massachusetts, and Frank C. Spinney.

The company has added a large amount of new equipment to its factory. Mr. Mitzel, the manager, has made great changes at the plant and has imbued a spirit of "get there" into the employes that points to a new era of prosperity for the company.

INVENTORS PETITION THE PRESIDENT.

The Inventors' Guild, the president of which is Ralph D. Mershon, 60 Wall street, New York, whose members are practical inventors, recently sent a set of resolutions to President Taft, in which they state that the independent inventor is at a very serious disadvantage in prosecuting his work successfully—for three reasons: First, because of his financial inability to defend his rights in the courts against the large interests, in the second place, because of the protracted delay in legal processes, even where he seeks to defend his rights in the courts, and third, because of the fact that most lines of commercial enterprises are now under a single control, and that control naturally is less interested in new inventions than in maintaining its present supremacy. The combined influence of these three causes, the Guild affirms, tends to discourage the activity of inventors and the successful outcome of their labors. Therefore, they invite the President's attention "to the urgent need of reforms in the patent office, and also in the courts which hear and decide patent causes," and request the President to recommend to Congress such action as will best accomplish the needed reforms.

The San Francisco branch of the Republic Rubber Co., at Youngstown, Ohio, will hereafter be known as the Republic Rubber Co. of California. The Western branch found it more convenient to incorporate under a new company to handle the business on the coast.

CHANGE OF NAME.

The Staunton Dielectrite Rubber Co., Muskegon, Michigan, has changed its name to the Vulcanized Products Co., and its dielectric material, hitherto called "Dielectric," will hereafter be known as "Gohmak."

The Imperial Wire & Cable Co., Ltd., of Montreal, announces that it has acquired the business of The Wire & Cable Co. The new company will continue to operate in Montreal, under the same management.

GEORGE SCHLOSSER A TRIPLE SUPERINTENDENT.

GEORGE SCHLOSSER, who for several years past has been superintendent of the Woonsocket Rubber Co.'s two mills, the "Alice" at Woonsocket, Rhode Island, and the boot mill at Millville, Massachusetts, has now been appointed superintendent of the Candee Rubber Co. mill at New Haven, Connecticut. As he

GEORGE SCHLOSSER.

retains the superintendency of the other two mills, he occupies the unique position of superintending three mills in three different places simultaneously.

This distinction did not come to Mr. Schlosser by chance but purely by reason of his qualifications and equipment. Mr. Schlosser is 47 years old, every one of these years having been spent in a rubber atmosphere. He was born in Milltown, New Jersey, close to the musical hum of a grinding mill and from his earliest days he breathed the fine aroma of the Up-river biscuit. It was natural, therefore, when he reached the ripe age of 17 that he should go to work in a rubber mill. After some twelve years' experience, which were twelve years of comprehensive education in rubber footwear manufacture, he was promoted from his position in the factory at New Brunswick (of which Milltown is a suburb) to the superintendency of the National India Rubber Co., at Bristol, Rhode Island. In 1900 he became assistant superintendent of the "Alice" mill of the Woonsocket Rubber Co. Later he was put in complete charge of the company's Millville mill and soon after he succeeded that master of rubber footwear construction, John Robson, as superintendent of the "Alice" mill, being given the title of general superintendent and having full charge of both these mills, which employ 2,000 people. Now with his extended superintendency covering the Candee mill, he has 3,200 people under his control.

There are two reasons why Mr. Schlosser occupies this unusual position. One is that he understands perfectly how to make rubber footwear, and the other is that he understands equally well how to handle human beings. He is not only an efficient manager but he is a popular "boss."

TRADE NEWS NOTES.

THE directors of the Boston Woven Hose and Rubber Co. have declared the regular quarterly dividend of $2.50 per share on the common stock, payable March 15 to stock of record March 5.

The Fisk Rubber Co., of New York, has recently closed a contract for equipment with the Connecticut Taxicab Co. There are now more than 1,000 taxicabs in New York City equipped with the Fisk Bolted-On Tire and Fisk Removable Rim.

The Wisconsin Rubber Co., Madison, Wisconsin, has increased its capital to $1,500,000.

The Manufactured Rubber Co. of Philadelphia has declared a regular quarterly dividend of 1½ per cent. on preferred, payable March 1 to stock of record February 24.

Options have been obtained on a manufacturing building with railroad facilities by the Frontier Tire and Rubber Co., a new Buffalo tire concern, which will take over the business of the Frontier Rubber Co. Charles F. Benzing is president and manager of the new company and Charles A. Castor is superintendent. The new company is expected to have a capacity of 1,500 automobile tires a day.

The Goodrich company has arranged to open salesrooms at 110 Cedar street, Spokane, Washington, about March 15. This agency will be in charge of R. H. Rowe, a practical factory man.

The general manager of the Motz Tire and Rubber Co., Akron, Ohio, states that one of the first sets of their cushion tires has traveled 24,000 miles, and is still on the road. He adds that he knows of several sets of their tires that have completed 20,000 miles, and are still in good condition.

William Q. Cramp has been appointed manager of the new branch opened by the Kelly-Springfield Tire Co., at Buffalo, New York, February 1. Mr. Cramp was an officer in the Seneca Rubber Co. and moves into his new connection as a result of the Kelly-Springfield Tire Co. absorbing the Seneca Rubber Co.

The Chrysolite Asbestos Company has filed papers with the Secretary of the State of Vermont to mine, manufacture and ship asbestos and its products from a mine or mines in Lowell and vicinity. The capital is $2,000,000 with 8,000 shares. The enterprise is given impetus by the proposed new railroad to connect the mines in Lowell and Eden with the markets. The papers are signed by William G. Gallagher of Lowell, Frank A. Walker and Willard Walker of Barre.

A paragraph has been going the rounds of the daily press to the effect that the United States Rubber Co. is about to put into operation a profit-sharing plan somewhat similar to that adopted by the United States Steel Co. It is quite true that the directors of the rubber company have given considerable thought to such a plan, but nothing definite has yet been decided upon, and no announcement is likely to be made for a number of weeks.

One of the daily papers, talking about the rubber situation, refers to "the time when crude rubber sold up to $5 a pound." Just what rubber this was and when it was sold is not stated. Evidently it was some variety of synthetic rubber.

The Springfield Tire and Rubber Co., Springfield, Ohio, on December 7, 1911, filed certificate increasing their capital stock from $50,000 to $150,000.

WANTS CLOGS AND FOOT HOLDS.

AN American consul sends in a report (No. 7944) to the effect that a merchant in a Mediterranean town is anxious to make arrangements for the agency of a certain type of American rubber shoe, which is not obtainable in his market. He describes the men's shoe as being very low, with just sufficient edge to hold to the leather shoe, and the women's shoe as very light in weight and without heels. Obviously, this man wants low clogs or Eversticks for men, and footholds for women, and it ought to be quite easy to supply his wants.

PERSONAL MENTION.

Robert L. Dean, who was formerly secretary of the Tehuantepec Rubber Culture Co., is now acting as secretary and treasurer of the Santa Cecilia Sugar Co., organized for the purchase and development of the sugar plantation in Cuba, with a New York office at 82 Beaver street.

George N. Martin has been made manager of the new Firestone Tire and Rubber Co.'s branch in Minneapolis, Minnesota. He was connected with the St. Louis branch for some time.

John H. Kelly, for nine years manager of the Chicago branch of the Republic Rubber Company, has been appointed general sales manager of the automobile tire department of that company, and has taken up his new duties at the main office in Youngstown, Ohio. Mr. Kelly has been directly connected with the tire business for fourteen years, and prior to that time he was actively engaged in the bicycle business.

MR. BARUCH LEAVES THE INTER CONTINENTAL BOARD.

H. B. Baruch has resigned as a director of the Intercontinental Rubber Co., and Felix Rosen, of Hayden, Stone & Co., has succeeded him. Officials of the company are quoted to the effect that Mr. Baruch's resignation did not mean that he had closed out his interest in Intercontinental Rubber. He is said still to retain a minority interest.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending February 24:

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]
Last Dividend, January 31, 1912—1%.

Week February 3	Sales 2,300 shares	High 46¾	Low 45¼
Week February 10	Sales 1,110 shares	High 46	Low 45⅝
Week February 17	Sales 800 shares	High 46	Low 45¾
Week February 24	Sales 700 shares	High 45⅝	Low 45½

For the year—High, 49, January 3; Low, 45¼, February 1.
Last year—High, 48½; Low, 30½.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, January 31, 1912—2%.

Week February 3	Sales 900 shares	High 110¾	Low 109
Week February 10	Sales 1,000 shares	High 109⅞	Low 109⅛
Week February 17	Sales .... shares	High	Low .....
Week February 24	Sales 325 shares	High 110	Low 109⅞

For the year—High, 111, January 11; Low, 109, January 30.
Last year—High, 115½; Low, 104.

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, January 31, 1912—1¼%.

Week February 3	Sales .... shares	High	Low .....
Week February 10	Sales .... shares	High	Low .....
Week February 17	Sales .... shares	High	Low .....
Week February 24	Sales .... shares	High	Low .....

For the year—High, 76½, January 8; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, $19,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week February 3	Sales 61 bonds	High 105	Low 104⅞
Week February 10	Sales 68 bonds	High 105	Low 104¾
Week February 17	Sales .. bonds	High ...	Low .....
Week February 24	Sales 11 bonds	High 105	Low 104⅞

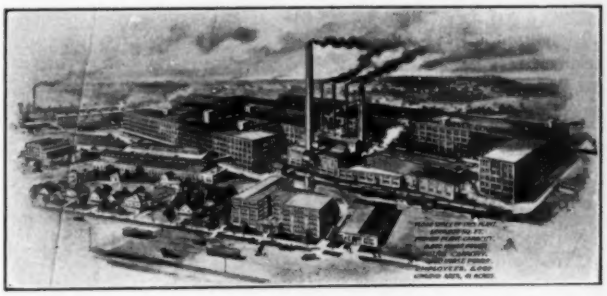
For the year—High, 105, February 24; Low, 103¾, January 6.
Last year—High, 105; Low, 101¾.

KANSAS FACTORY LAW VOID.

THERE was a statute passed in Kansas in 1893 providing that every corporation doing business in that State, with the exception of surface railway companies and corporations producing farm and dairy products, should pay its employes the wages earned each week, not later than Friday of that week. A test has recently been made of the constitutionality of this law, and it has been adjudged, first by the district court, and later by the Supreme Court, to be unconstitutional and void, coming under the head of class legislation. As a matter of fact, the law has been practically a dead letter since the day of its enactment.

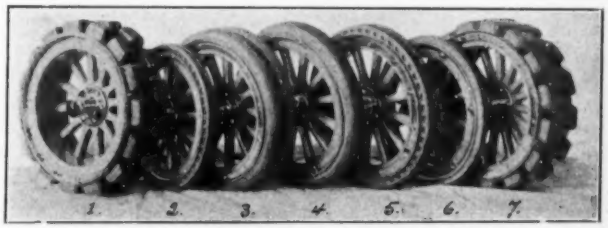
ADDITIONS TO THE GOODYEAR TIRE AND RUBBER CO.'S PLANT.

THE GOODYEAR TIRE AND RUBBER CO., Akron, Ohio, has recently made some noteworthy additions to its plant in order to be ready for a greater output for the coming season. The new office building, which is indicated by the Fig. 1 in the accompanying illustration, is said to be a model of convenience. The new laboratory (marked "2") will be completed in the early summer and another large factory building will be erected this summer. The factory is expected to have a capacity of 3,500 automobile tires, 30,000 pounds of motor truck and carriage tires and 500 motorcycle tires per day. During the past year the company has added buildings aggregating 400,000 feet of floor space, making a total of nearly 1,000,000 square feet of floor space for their 1912 operation.



GOODYEAR TIRE AND RUBBER CO., AKRON.
1. New Office Building. 2. New Laboratory.

Here is an interesting photograph showing seven of the different kinds of solid truck tires made by this company.



GOODYEAR SOLID TRUCK TIRES FOR 1912.

No. 1. Goodyear individual block tire. Solid, demountable tire for heavy duty service.
No. 2. Goodyear-Motz high efficiency tire.
No. 3. Goodyear solid demountable tire.
No. 4. Goodyear metal base tire.
No. 5. Goodyear-Motz fire department tire.
No. 6. Goodyear-Motz demountable truck tire.
No. 7. Goodyear diagonal block tire.

WHERE PAPER IS AS GOOD AS RUBBER.

The Swinehart Tire and Rubber Co., Akron, Ohio, has adopted a method of advertising its tires which is effective, and at the same time economical in rubber. It has made for display purposes a number of large tires, 5 feet in diameter and 10 inches thick, exactly reproducing its motor tires. Obviously tires of this size made in the ordinary way would consume a valuable quantity of rubber, but these tires are made of *papier maché* and for window and other displays are quite as serviceable as if compounded of the finest Pará.

CANADIAN CODE FOR RUBBER-COVERED WIRE.

AT a conference held in Toronto in January, at which the representatives of the Canadian rubber-covered wire manufacturers and electrical inspectors were present, it was agreed that on and after January 1, 1913, only rubber-covered wires and cables having insulation in accordance with the National Electrical Code, 1911 specifications, would be made, as required by electrical inspection departments throughout the Dominion of Canada.

NEW INCORPORATIONS.

ADVANCE RUBBER Co., January 29, 1912, under the laws of New York; authorized capital $150,000. Incorporators: F. H. S. Hyde, Englewood, New Jersey; Adolph Lublintz, 546 Broadway; and Claude Pinney, 30 West Forty-fourth street—both of New York. The company has a three-story factory 40 x 100 feet at Eighteenth street and Eighth avenue, Brooklyn, New York, where its office will be maintained for the present. The officers of the company are F. H. S Hyde, president; Claude Pinney, vice-president; W. Irving Glover, secretary and treasurer; and L. R. Pratt, general superintendent. The company intends to make a one-cure wrapped tire and a pure gum tube.

American Spring Tire Co., January 25, 1912; under the laws of Delaware; authorized capital, $500,000. Incorporators: Eugene Hogue, 4151 Indiana avenue; Herman Crampy, and Charles E. DeVall, all of Chicago, Illinois. To manufacture spring cushion tires and automobiles.

Atlas Raincoat Co., January 24, 1912; under the laws of New York; authorized capital, $2,000. Incorporators: Morris Robinson, 44 East Broadway, Joseph and Beckie Bick, both of 719 East Ninth street—all of New York. Location of principal office, New York. To manufacture raincoats and rubberized goods.

The Bison Rubber Co., January 22, 1912, under the laws of New York; authorized capital, $5,000. Incorporators: J. R. Heintz, Carl W. Heintz, and Robert S. Barnard—all of Buffalo, New York. This concern was formerly known as the Republic Tire Agency and will continue to sell Republic tires in Buffalo and western New York. Principal office is at 908 Main street, Buffalo.

Colonial Rubber Specialties Co., February 15, 1912; under the laws of New York; authorized capital, $10,000. Incorporators: George M. Port, 4 West One Hundred and First street, New York; Edward F. Aird, 551 Van Courtland Park avenue, Yonkers, New York; and Sanford Newman, 2159 Mapes avenue, New York. Location of principal office, New York. To deal in auto supplies, etc.

Diamond Rubber Co., January 30, 1912; under the laws of New York; authorized capital, $200,000. Incorporators: Max L. Friedman, 81 Reade street; Jacob Davis, 468 Thirteenth street, Brooklyn, New York; and David Davis, 37 Wall street, New York. Location of principal office, New York. To deal in shoes, rubbers, etc.

The Durst Manufacturing Co., February 7, 1912; under the laws of New York; authorized capital, $15,000. Incorporators: Max, Henry and Sarah Durst, all of 1525 Fulton avenue, Bronx, New York. Location of principal office, 88 Reade street, New York. This company was formerly the National Rubber Co., having changed its name at the request of the National India Rubber Co. of Bristol, Rhode Island, in order to avoid any confusion in the trade, because it was too similar to theirs. The new company has increased its capitalization $10,000 and is prepared to manufacture plumbers' rubber goods, brass sundries, and all kinds of rubber, fibre paper and leather washers.

The Expansion Spring Rim and Tire Co., January 20, 1912; under the laws of Massachusetts; authorized capital, $500,000. Incorporators: Charles O. Doyle, Everett; Harris L. McNeill, Waltham; and Orrie T. Bowman, Everett—all of Massachusetts. To manufacture and sell auto vehicle wheels and tires.

Gotham Raincoat Co., February 3, 1912; under the laws of New York; authorized capital, $5,000. Incorporators: Solomon and Fannie Schiller—both of 604 West One Hundred and Twelfth street, and Abraham Smith, 133 Bay Twenty-fifth street, New York. To manufacture men's and women's raincoats at No. 11 West Seventeenth street, New York City.

Gough Manufacturing Co., Inc., February 5, 1912; under the laws of New York; authorized capital, $2,500. Incorporators: William R. Gough, George W. Greene and Leonard Black—all of 313 East Twenty-second street, New York. To manufacture rubber hose, plumbers' supplies, and brass valve couplings. Location of principal office, 313 East Twenty-second street, New York.

Josephson Rubber Co., January 27, 1912; under the laws of New York; authorized capital, $21,000. Incorporators: Charles Josephson, 854 West One Hundred and Eighty-first street; Haskell A. Josephson, 740 Riverside Drive, and Felix S. Davidson, 2881 Broadway—all of New York. Location of principal office, New York. To deal in waterproof clothing, rubber goods, etc.

H. Levin Shoe Co., February 6, 1912; under the laws of New York; authorized capital, $14,000. Incorporators: Ida Levin, 1565 Madison avenue, Louis Levin, 1493 Madison avenue, and Jacob Leibowitz, 548 West One Hundred and Sixty-fourth street—all of New York. Location of principal office, New York. To deal in shoes, rubbers, etc.

The Motor Supply and Tire Co., January 25, 1912; under the laws of Ohio; authorized capital, $1,000. Incorporators: Earl C. Gargett, Robert B. Gargett and Robert J. Holbrook. To retail and sell automobile supplies.

The Ohio Punctureless Tire Co., January 16, 1912; under the laws of Ohio; authorized capital, $50,000. Incorporators: Elmer O. Pettit, William Moore and C. N. Bowen.

The Raincoat Kings, Inc., February 19, 1912; under the laws of New York; authorized capital, $3,000. Incorporators: Herman Goldberg, 74 East One Hundred and Sixteenth street, New York; Sam Grobgeld and Jacob Cooper, both of Brooklyn, New York. Location of principal office, Brooklyn. To manufacture rubber clothing.

Standard Tire and Rubber Co. of Springfield, February 6, 1912; under the laws of Massachusetts; authorized capital, $10,000. Incorporators: William P. Cronin, James S. Waddell, Boston, Massachusetts, and Wayne E. Hughes, Springfield, Massachusetts. To manufacture and deal in all articles composed partly of rubber, and automobile sundries, etc.

The Troy Rubber Tire Co., January 17, 1912; under the laws of Ohio; authorized capital, $10,000. Incorporators: Jacob Sweigart, Sherman LeBlond and Cyrus S. Petry. To manufacture and deal in rubber tires, machines to make, attach and detach wheel tires and other kindred machines and articles.

Vulcanized Products Co., January 8, 1912; under the laws of Delaware; authorized capital, $200,000. Incorporators: Henry P. Crowell, Robert and John Stuart, all of 1600 Railway Exchange, Chicago, Illinois. To manufacture a rubber compound for the purpose of insulation.

CUBAN DUTIES REDUCED ON AMERICAN RUBBER GOODS.

According to a recent ruling of the Treasury Department of Cuba, American rubber goods, which are made in connection with cotton or silk and wool enter into that country at a lower rate of duty than has hitherto been the case. The following paragraph is from the "Cuba Review":

"During the preparation of Tariff Series No. 27, Customs Tariff of Cuba, the question arose whether waterproof fabrics, when originating in the United States, were entitled, by virtue of the reciprocity treaty of December 11, 1902, to the reduction provided for manufactures of the component fibers (30 per cent. in the case of cotton and 40 per cent. in the case of silk and wool), or to the general reduction of 20 per cent. provided for articles not specifically named in the treaty. An inquiry was accordingly instituted, through diplomatic channels, as to which treatment was actually applied.

"In reply, it is pointed out by the Treasury Department of Cuba, under date of November 23, 1911, that heretofore, by virtue of a precedent established in the custom house of Havana, a reduction of 20 per cent. was applied, but that in the future a reduction of 30 per cent. will be accorded to waterproof fabrics of cotton, and of 40 per cent. to waterproof fabrics of wool or silk. The reduction applies to all articles coated with rubber on one or both sides, as well as to those with an interior lining of rubber."

TRADE NEWS NOTES.

THE marble sky-scraper of the United States Rubber Co., which is being erected at the corner of 58th street and Broadway, New York, is progressing rapidly, and the company hopes to be in its new home by the first of July. The estimated cost of the building, when the plans were made was $750,000, and the ground lease, which runs for 21 years, is said to be $40,000 per year.

The sanitary drinking cup has invaded the rubber factory. The employes of the Fairfield Rubber Co., Fairfield, Connecticut, have asked the company to provide individual drinking cups, which has been done. Not a bad idea for other factories to adopt.

Rubber bumpers between the frame and body of an automobile are being adopted by makers of high-grade cars. They prevent body squeaks and other unnecessary noises, and these little cushions of rubber not only produce silence, but reduce the shock of impact in hitting holes, rails and rough spots, as well as lessening the wear and tear of bodies under prolonged hard usage.

A count of tires in cars displayed at the automobile shows gave Firestone 47 sets at the New York shows and 25 sets at the Philadelphia show. Many of these vehicles were equipped with the Firestone quick-removable rim enabling the driver to make tire changes on the spot.

The Goodyear Tire and Rubber Co., Akron, Ohio, has a set of tires which probably has been nearer the North Pole than any other—considering the fact that neither Commander Perry nor Dr. Cook made any profession of having approached the pole in an auto-car. This set of tires was on a car used in a trip from San Francisco to Klondike, and back to Denver.

Officers of the Rubber Manufacturers' Mutual Insurance Co. for 1912, are as follows: President, Arthur H. Lowe; vice-president, E. B. Page; secretary and treasurer, Benjamin Taft; assistant secretary and treasurer, W. B. Brophy. The following are directors: Arthur H. Lowe, E. B. Page, George H. Hood, Marcus Beebe, C. C. Converse, E. H. Clapp, F. W. Pitcher, W. B. Plunkett, C. E. Stevens, E. S. Williams, George B. Hodgman, C. T. Plunkett, B. G. Work and Benjamin Taft.

The Goodyear Tire and Rubber Co., Akron, Ohio, are about to engage in the manufacture and sale of a complete line of molded goods, balata belting and asbestos packing.

SHARPENING THEIR WITS.

THE best help you can give a man is to help him to use his own capacities. That is what the Republic Rubber Co., Youngstown, Ohio, is doing with its employes. Last summer it offered four cash prizes, aggregating $300, for ideas. First and second prizes in class one were awarded on the best suggestions for improvements in existing machines, processes or methods of manufacture in use by the company. In class two, first and second prizes were offered for the best original plans for new machines, processes or methods of manufacture. These contests were open to any employe of the company except general officers.

The awards were made in December, and so much interest was shown by the employes that the company intends to hold many more such contests.

PROFESSIONAL FACTORY GUIDES.

IT is obvious that one of the best methods of advertising the product of a factory, is to take people through the factory, and let them see the product made—that is, where the people taken through the factory are sufficiently interested in that special article to make it worth while; but for the president or the general manager to take his time every day or two to show visitors through the plant is something of a burden.

The Goodyear Tire and Rubber Co., Akron, Ohio, has adopted a plan which other manufacturers might very well follow. They have selected two or three of their employes who are thoroughly familiar with all the phases of manufacture, and who also have the ability to explain the processes intelligibly, and they have appointed them as official guides to escort visitors through their factory. In this way, the visitors get all the attention they desire, and the officials of the company are able to prosecute their more important labors.

A RUBBER MAYOR.

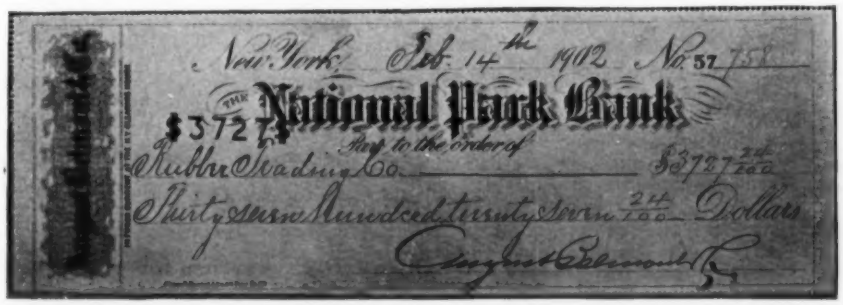
John L. Fisk, mayor of Middletown, Connecticut, is a bookkeeper in the office of the Goodyear Rubber Co. and his official honors have not altered his efficiency as a bookkeeper. If anyone should be inclined to inquire what special qualifications a rubber bookkeeper had for the mayoralty for a city, the proper answer would be that a dependable rubber bookkeeper ought to make a vastly better mayor than the professional politicians who usually get those positions.

HENRY BROWN.

HENRY BROWN, an old employe of the National India Rubber Co., at Bristol, Rhode Island, and father of James Brown, a foreman there, died at his home, 7 Collins street, Bristol, on February 10, after a long illness. He is survived by three sons, James, John and Edward; two daughters, and his widow. The funeral was held at St. Mary's Church, Bristol, February 12.

LARGEST DELIVERY OF RUBBER YET MADE.

THE accompanying photographic cut of a check, paid by August Belmont & Co. to the Rubber Trading Co., is interesting as showing the largest commission ever paid on a sale of rubber for a single delivery. This was for a lot of 1,238 cases—about 188 tons—bought February 7 by The B. F. Goodrich Co., of Akron, Ohio. There have been other sales of rubber of considerably larger volume, but in all of those cases, deliveries were to extend over a period of time. This is said to have been the largest sale of rubber for one delivery ever made in this country. It came from the quantity, estimated at about 5,000 tons, that was held by a syndicate in Brazil, generally referred to as "valorized rubber." There are about 2,300 tons of this rubber still held back in Brazil and England, but the sale referred to about clears out all the syndicate rubber held in this port. It is believed to have cost the syndicate about $1.40 per pound. While the selling price is not given out either by the buyer or the seller, it is safe to say that it was not very far from $1.10 per pound. That was a little higher than the market price on the day of sale, but over against that must be taken the fact that this rubber has been in storage since April, 1910, and is considerably drier than new offerings.


New York Feb 14th 1912 No 57
THE National Park Bank
$37 27/100
Pay to the order of
Rubber Trading Co
$3727 24/100
Thirty seven Hundred twenty seven 24/100 Dollars
August Belmont & Co

There is some conjecture as to the amount of loss suffered by the syndicate, but it would be a good Yankee guess, taking into consideration all the features of the case—the cost of the rubber when bought, the shrinkage, expense of transportation, the banking expenses, and deducting the export duty—that this sale would represent a loss of between $50,000 and $60,000.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

1,013,327. Vehicle-tire. James E. Hale, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,013,524. Pneumatic wheel. J. W. Livingston, assignor of one-half to John Noble—both of Livingston, Wis.

1,013,564. Combined tire-holder and trunk. J. V. Fratzner, New Haven, Conn.

1,013,575. Eraser. J. V. Washburne, Fulton, N. Y.

1,013,598. Tire. A. Freschl, Chicago, Ill.

1,013,716. Vulcanizer. A. Adamson, Akron, Ohio.

Trade Marks.

40,986. Michelin Tire Co., Milltown, N. J. A representation of the words *Le Pneu Michelin Boit L'Obstacle*. Pneumatic tires for automobiles.

ISSUED JANUARY 9, 1912.

1,013,949. Spring-felly automobile wheel. T. F. O'Brien, Highmore, S. D.

1,013,992. Foot-cushion. R. W. Foster, Needham, Mass., assignor to Essex Mfg. Co., Kittery, Me., and Lynn, Mass.

1,013,994. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,013,995. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,013,996. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,013,997. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,013,998. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,013,999. Wheel. L. G. Handy, Rutherford, N. J., assignor to W. C. Dickerman, New York.

1,014,004. Bottle-holder. C. G. Irwin, Ardmore, Pa.

1,014,007. Tire. G. W. Kitterman, Berwyn, Ill., assignor of one-half to M. D. Matteson, Chicago, Ill.

1,014,075. Vehicle wheel-tire. J. H. Lorimer, Philadelphia, Pa.

1,014,131. Vehicle-wheel. B. A. Dennis, assignor to T. A. McGrath—both of Providence, R. I.

1,014,192. Quick-opening door for vulcanizers. J. K. Williams, Akron, Ohio.

1,014,233. Practice-ball. C. B. W. Klp, Montclair, N. J.

1,014,244. Cushion-wheel for vehicles. J. F. Mitchell, Topeka, Kan.

1,014,260. Dating-stamp. Elmer H. Sanborn, Los Angeles, Cal.

1,014,318. Cushion-tire. Myron C. Merriman, Detroit, Mich.

1,014,345. Vehicle-tire. George E Starn, Camden, N. J., assignor to H. M. Dover, Palmyra, N. J.

1,014,357. Antiskidding tire. G. J. Adam, Chicago, Ill.

1,014,358. Antiskidding device for tires. G. J. Adam, Chicago, Ill.

1,014,386. Hose-nozzle. H. Gibbs, assignor to W. D. Allen Mfg. Co.—both of Chicago. Ill.

1,014,458. Protector for tires. D. H. Gabriel, Adeline, La.

1,014,464. Reinforced inner tube for pneumatic tires. F. H. Hall, Norton Lindsey, England.

1,014,465. Device for applying hair-tonics. I. O. Hall, Calgary, Alberta, Canada, assignor of one-half to H. C. Strange, Bassano, Canada.

1,014,505. Adjustable hat or cap. C. I. Minkoff and L. Kronthal, New York.

1,014,558. Resilient wheel. E. C. Bass and E. S. Hough, London, England.

1,014,594. Dental cleaning device. C. B. Hakins, Norwood, N. Y.

1,014,607. Nozzle for water-bags. E. Over, assignor of one-half to D. Kellaher—both of Portland, Ore.

1,014,613. Protective covering for pneumatic tires. A. H. Shoemaker, Seattle, Wash.

Reissues.

13,352. Vacuum cleaner. C. A. Dillon, assignor to The United Electric Co.—both of Canton, Ohio.

Trade Marks.

ISSUED JANUARY 16, 1912.

1,014,644. Resilient wheel. R. E. Ellis, Riddrie, Glasgow, Scotland.

1,014,694. Vehicle wheel. A. Y. Davis, Kansas City, Mo.

1,014,718. Electric coupling. I. H. Parsons, Kibworth Harcourt, near Leicester, England.

1,014,851. Tire-plug. P. A. Rosenthal, New York.

1,014,858. Spring-wheel. R. Stock, New York.

1,014,873. Waterproof overshoe and legging. E. L. Hall, Providence, R. I.

1,014,912. Tread for pneumatic tires. A. H. Shoemaker, Portland, Ore.

1,015,038. Resilient wheel. W. T. A. Manning, Detroit, Mich.

1,015,044. Vehicle wheel. S. Oldham, Philadelphia, Pa.

1,015,312. Tire. A. F. Winder, Franklin, Pa.

1,015,323. Tire-filling compound. H. J. Breen, Portland, Ore.

1,015,463. Localizing stethoscope. D. O. Foggate, Chicago, Ill.

1,015,478. Tire-protector. R. C. Harris, Pittsburgh, Pa.

1,015,486. Vehicle-wheel. W. H. Horsfeld, Kansas City, Mo.

1,015,538. Vehicle wheel and tire. S. N. McClean, Cleveland, Ohio.

11,564. Spring vehicle-wheel. E. Murray, assignor to The Resilient Motor Wheel Syndicate, Ltd.—both of London, England.

ISSUED JANUARY 23, 1912.

1,015,311. Steam-hose. E. E. Gold, New York.

1,015,422. Combined tire and trunk holder for automobiles. A. U. Campbell, Toledo, Ohio.

1,015,451. Spring-tire for vehicle wheels. A. B. McQueen, Dunnellon, Fla.

1,015,468. Composition of matter. N. F. Avery, assignor of one-half to C. Thomas—both of Brockton, Mass.

1,015,500. Toe case, puff, or the like for boots and shoes. G. Looms, Market Harborough, England.

1,015,545. Creeping and antiskidding device. W. S. Craig, St. Marys, Ohio.

1,015,599. Pneumatic tire. G. R. Vaughan, Jefferson City, Mo.

1,015,642. Safety-tread. H. C. Seipp, Pittsburgh, Pa.

1,015,682. Suspension spring for vehicles. L. P. Constant Jacquet, Neuilly-sur-Seine, near Paris, France.

1,015,690. Automobile-tire. J. E. Knauss and C. Phinney, Healdsburg, Cal.

1,015,760. Vehicle-wheel. A. Mosso, S. & P. Giovanetti, San Francisco, Cal.

1,015,718. Flexible pipe connection. T. Smith, Chicago, Ill.

1,015,761. Resilient wheel. M. E. Knight, Framingham, Mass.

Designs.

42,103. Pneumatic-tire tread. G. W. Beldam, Ealing, England.

42,104. Pneumatic-tire tread. G. W. Beldam, Ealing, England.

Trade Marks.

59,771. Kabus Rubber Co., New York. The word *Kosmos*. For rubber erasers and rubber bands.

59,772. Kabus Rubber Co., New York. The word *Acme*. For rubber erasers and rubber bands.

ISSUED JANUARY 30, 1912.

1,015,812. Patient supporter. C. Madsen, Buffalo, N. Y.

1,015,862. Vehicle-wheel. A Williams, St. Louis, Mo.

1,015,991. Electric heating pad. W. S. Clark, assignor to General Electric Co.—both of Schenectady, N. Y.

1,016,075. Feed-bag. G. Kowalsky, McDowell, W. Va.

1,016,096. Manufacture of resilient tires. G. D. Rose, Manchester, England.

1,016,122. Inner tube for tire-casings. W. C. Beckwith, Fostoria, Ohio.

1,016,128. Artificial tooth plate. A. C. Buttman, Grand View, Iowa, assignor of one-half to A. J. Greiner, Louisa County, Iowa.

1,016,137. Waterproofing compound for leather. P. F. Frost, Silverdale, Wash., assignor to Amanda Frost, Victoria, Canada.

1,016,173. Hose-nozzle and sprayer. R. Porter and Louis Krueger, Neodesha, Kan.

1,016,200. Wheel for motor-vehicles. A. T. Beeler, Kansas City, Mo.

1,016,217. Tire-setter. C. A. Devero, Springfield, Ill., assignor to The Keokuk Hydraulic Tire Setter Co.

1,016,244. Boxing device. G. Troxler, Newark, N. J.

Designs.

42,121. Rubber finger-pad for massage devices. C. E. Thompson, assignor to Luxury Sales Co.—both of Troy, N. Y.

Trade Marks.

58,863. Antoine Aacheri, Neuilly-sur-Seine, France. The words *Le Monstre*. For pneumatic tires, covers, etc.

60,180. The Vulcanized Rubber Co., New York. The word *Aviator*. For rubber combs.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 17, 1912.]

22,114. Rubber rods for typewriters. H. H. Yell, Southsea, Portsmouth.

22,201. Apparatus for extracting or cleansing rubber. L. Norzagaray, 35 Hargrave Mansion, Upper Holloway, London.

22,214. Elastic cords and bodies for tires. O. Grenier, 100 Avenue Victor Hugo, Boulogne, France.

*22,227. Improvements in medical plasters. E. M. Pond, Rutland, Vt., U. S. A.

22,413. Rubber valve packing. W. H. Greatorex, 107 Ivanhoe Road, Camberwell, London.

22,415. Rubber tapping tools. W. E. F. De Lacy, Mombasa, East Africa, and W. A. Merrick, 5 Carlisle st., Edgware Road, London.

22,419. Compressed air or gas containers. Michelin & Co., Clermont Ferrand, France.

22,502. Rubber strips in knife cleaning machines. J. C. L. Schweiss, 216 High st., Harlesden, London.

22,607. Rubber sockets for nozzles of hose. J. T. Reeve, Hounslow, Middlesex.

22,632. Improvements in rubber tapping appliances. W. Clarkson, Lesmahagow, Scotland.

22,712. Improvements in tire jackets and covers. P. Elmer, Penarth, Glamorganshire, Wales.

22,716. Process for rubberizing hides, etc.. Hyde Tyre & Motor Syndicate, No. 30 Bedford Row, and R. Withey, 103 Verney Road, South Bermondsey—both in London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 24, 1912.]

22,773. Elastic cores and bodies for tires. J. H. Knight, Barfield, Farnham, Surrey.

22,784. Improvements in pneumatic tires. R. T. Smith, 111 Lovely Lane, Warrington, Lancashire.

22,866. Rubber strips for show-cases, etc. G. Obrist, W. Obrist and A. Obrist, Fluhmuhl, Luzern, Switzerland.

22,906. Device for repairing hose pipes. E. M. Potter, Thame.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JANUARY 31, 1912.]

23,057. Pressure gauges for pneumatic tires. A. Puschmann, 7 Albusserohle, Breslau, Germany.

23,193. Pressure gauges for pneumatic tires. E. Ellis, 40 Harbord Road, Sheffield.

23,225. Massage appliances. J. F. Ray, Bolton-le-Sands, Carnforth.

*23,398. Tools for replacing elastic tires. B. Dahl, 533 N. E. First st., Minneapolis, and P. C. Bell, Milburn, N. J.—both in U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

430,533 (May 19, 1911). Couinaud. Elastic tire for wheels of vehicles of all kinds, including aeroplanes, locomotives, etc.

430,462 (April 6). B. Fuchs. Appliance for attaching moveable rubber heels without the use of screws, nails, glue, etc.

430,511 (May 10). Siciété Internationale "Asia." Process for separation of resin from rubber in products containing both substances.

430,532 (May 22). W. W. Wildman and J. Christy. Treatment of vulcanized rubber.

430,607 (June 6). F. Wette. Rubber soles.

430,657 (June 7). A. Heinemann. Process for preparation of isoprene.

430,658 (June 7). A. Heinemann. Process for making rubber by means of isoprene.

430,703 (June 8). W. H. Goodfellow and W. A. MacClain. New filling substance for tires and process for its insertion.

430,752 (May 24). R. G. Hartle. Improvements in covers for pneumatic tires.

430,828 (June 9). W. Kirchner. Improvements in balloons, and particularly in fabrics for gas bags.

430,904 (June 12). L. P. Ferrere. Indeformable pneumatic container for compressed air in sections of tires, permitting the suppression of air chambers.

430,994 (June 6). M. Castehnau. Supplementary pneumatic tires for wheels.

430,881 (June 7). U. Chandeyssin. New elastic product.

430,945 (March 29). E. Audin-Lemoine. Foot wear with pneumatic soles.

431,023 (June 13). W. G. Boonzaier. Wheel rim and tire.

431,073 (June 14). E. Decloquemont. Pneumatic tire.

431,098 (June 15). E. Meunier de St. Laurent. Product for automatically stopping perforations of air chambers in pneumatic tires.

431,142 (June 16). J. J. Ryan. Armed covers for wheel tires.

431,237 (April 26). A. Boerner. Protective cover for rubber tires.

431,147 (June 16). [illegible] Improvements in method of mounting covers [illegible] with series of valves).

431,076 (from November 5, 1910). Dr. Carl Harries, Kiel. Process for the production of isoprene.

243,248 (from April 25, 1910). Chemische Werke Dr. Carl Bayerthal. Process for maintaining elasticity of rubber goods.

243,346 (from December 1, 1909). Dr. Wolfgang Ostwald, Leipzig, and Walter Ostwald, Buckow. Process for the prevention of slackening of decay in manufactured rubber articles.

243,347 (from January 14, 1911). Dr. Gustav Koller, Dr. Julius Herbabny, and Dr. Oskar Jolles, Wien. Process for production of a plastic mass.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of December, 1911, and for five calendar years:

MONTHS:	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
December, 1911.....	190,898	$120,946	$612,118	$923,962
January-November ..	2,085,613	1,565,146	6,528,022	10,178,781
Total, 1911.....	$2,276,511	$1,686,092	$7,140,140	$11,102,743
Total, 1910.....	2,056,944	2,266,137	5,681,486	10,004,567
Total, 1909.....	1,800,300	1,653,466	4,413,626	7,867,392
Total, 1908.....	1,256,490	1,329,170	3,580,685	6,166,345
Total 1907.....	1,402,373	1,646,880	3,944,080	6,993,333

THE above heading, "All Other Rubber," for the month of December, 1911, and for the calendar year, includes the following details relating to Tires:

MONTHS.	For Automobile.	All Other.	TOTAL.
December, 1911....*values*	$200,450	$34,677	$235,127
January-November	2,257,727	526,653	2,784,380
Total	$2,458177	$561,330	$3,019,507

Exports of rubber boots and shoes have been in quantity: 3,150,294 pairs in 1909; 4,157,693 pairs in 1910; 2,886,965 pairs in 1911.

Exports of reclaimed rubber: $487,675 in 1909; $652,233 in 1910; $847,335 in 1911.

IMPORTS INTO THE UNITED STATES.

MANUFACTURERS OF:	1909.	1910.	1911.
India-rubber	$1,390,684	$971,764	$819,733
Gutta-percha	71,857	79,111	47,896
Elasticon and similar substitutes..	.....	.....	*40,774
Total	$1,462,541	$1,050,875	$908,403

*Figures cover period since July 1.

EXPORTS OF AUTOMOBILES AND PARTS (EXCEPT TIRES).

Countries.	1909.	1910.	1911.
United Kingdom	*$2,059,210	*$2,755,592	$3,380,266
France	*846,136	*753,204	449,757
Germany	*181,087	*331,754	124,615
Italy	*224,068	*377,750	199,986
Other Europe.....	*335,675	*764,463	718,360
Canada	*2,437,042	*5,021,043	5,549,998
Mexico	*494,238	*689,903	492,974
West Indies and Bermuda..	*337,414	*412,588	343,281
South America.....	*240,453	*519,160	1,356,445
British Oceania.....	*303,452	*748,933	2,217,762
Other Asia and Oceanic.....	*191,448	*599,756	795,576
Other countries.....	*136,394	*216,150	295,341
Automobiles			$15,924,361
Parts of (except tires)....			3,254,123
Total	*$7,786,617	*$13,190,296	$19,178,484

*Figures include both "Automobile" and "Parts of."

Review of the Crude Rubber Market.

THE last days of January displayed in the London market the influence of the conditions attending the auctions of January 30; prices receding about 1*d.* below the previous level of 4*s.* 8½*d.* Buyers at the sale in question were at first conservative in their operations, which were confined to the choicest grades, only 80 tons having been sold on the first day out of the 500 tons offered. Owing to the recovery which took place almost immediately, about 400 tons of plantation rubber were disposed of at the second day's sale at unchanged prices, nearly all the parcels offered finding buyers. These purchases being for consumption, tended to promote a healthy feeling, which was further encouraged by the premium for distant fine Pará being maintained at 1*d.* to 2*d.* above the value of the nearer positions.

While demand had in general been satisfactory, attention was directed to the opinion, expressed in some quarters, that most of the anticipated receipts being sold to arrive, and a certain amount of reserve stock being held by manufacturers, some dullness might be looked for until more is known about the Brazilian output. Large holders recognized that the premature inauguration of an upward movement might bring about a reaction just previous to the next sales. The amount of forward trading, it has likewise been urged, will reduce the ultimate orders of consumers. Hence a disposition on the part of holders to meet the wants of consumption.

The sale of the New York syndicate stocks tended to a brief improvement, but the London price again dropped, reaching 4*s.* 6½*d.* on the 9th. It was considered that the disposal of this New York stock indicates that in the opinion of the interested holders, there are meager prospects of a much higher market value than now prevails. It is understood that the Pará stock held by the syndicate represents about 2,400 tons.

At the opening of the London sales of the 13th conditions were practically unchanged, but the influence of prospective increased supplies of plantation was manifest in the evident unwillingness of controlling interests to check the demands of consumption. It has been remarked that the present values show large returns to producers, so that a continued disposition on their part to encourage demand is fully anticipated. An advance of 1½*d.* was established at the later part of the sale, but this improvement was afterwards lost in the open market, being, however, subsequently regained.

Interest during the latter part of the month culminated in the London auction of plantation rubber, scheduled for the 27th, for which the large quantity of 850 tons had been announced; being in excess of the offerings at any individual sale during 1911. On the first day 350 tons were disposed of.

Unlooked for steadiness was displayed on the opening day of the sale, demand proving sufficiently active to give a firm tone to the market. Prices remained within a fraction of previous figures. Fine upriver Pará was quoted on the 27th at 4*s.* 7½*d.*

New York Quotations.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and February 29—the current date.

PARA.	Mar. 1, '11.	Feb. 1, '12.	Feb. 29, '12.
Islands, fine, new	152@153	108@109	107@108
Islands, fine, old	none here	110@111	108@109
Upriver, fine, new	164@165	111@112	109@110
Upriver, fine, old	166@167	114@115	112@113
Islands, coarse, new	89@ 90	64@ 65	62@ 63
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	117@118	94@ 95	92@ 93
Upriver, coarse, old	119@120	none here	94@ 95
Cametá	93@ 94	66@ 67	65@ 66
Caucho (Peruvian) ball	117@118	94@ 95	93@ 94
Caucho (Peruvian) sheet	none here	none here	none here
PLANTATION PARA.			
Fine smoked sheet	183@184	133@134	130@131
Fine pale crepe	168@170	131@132	129@130
Fine sheets and biscuits	158@159	127@128	125@126
CENTRALS.			
Esmeralda, sausage	107@108	92@ 93	91@ 92
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap	105@106	91@ 92	90@ 91
Panama	none here	none here	none here
Mexican, scrap	104@105	90@ 91	89@ 90
Mexican, slab	65@ 66	54@ 55	none here
Mangabeira, sheet	72@ 73	none here	68@ 69
Guayule	75@ 76	60@ 62	60@ 61
Balata, sheet	95@ 96	89@ 90	89@ 90
Balata, block	72@ 73	56@ 57	55@ 56
AFRICAN.			
Lopori ball, prime	132@133	109@110	109@110
Lopori, strip, prime	none here	105@106	none here
Aruwimi	125@126	106@107	105@106
Upper Congo ball, red	132@133	112@113	110@111
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	135@136	95@ 96	98@ 99
Massai, red	135@136	102@103	101@102
Soudan, Niggers	none here	none here	none here
Cameroon ball	88@ 90	69@ 70	70@ 71
Benguela	80@ 81	72@ 73	71@ 72
Madagascar, pinky	105@106	none here	none here
Accra, flake	43@ 44	27@ 28	27@ 28
EAST INDIAN.			
Assam	105@106	none here	none here
Pontianak	7¼@7¼	5⅝@5¾	5¾@
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands fine	4$600	Upriver, fine	5$650
Islands, coarse	2$350	Upriver, coarse	4$500
		Exchange	16 7/32*d.*

Latest Manáos advices:

Upriver, fine	5$750	Exchange	16 7/32*d.*
Upriver, coarse	4$350		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During February there has been a good demand for paper from banks, both in and out of town, at about the same rates as in January, namely, 4½@4¾ per cent. for the best rubber names, and 5@5½ per cent. for those not so well known."

PRICES FOR JANUARY (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	$1.03@1.11	$1.15@1.30	$1.78@1.87
Upriver, coarse	.90@ .94	.90@ .98	1.11@1.15
Islands, fine	.97@1.07	1.00@1.15	1.67@1.81
Islands, coarse	.62@ .64	.62@ .69	.71@ .75
Cametá	.63@ .66	.64@ .73	.79@ .85

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are practically unchanged:

	March 1
Old rubber boots and shoes—domestic	9¼@ 9⅜
Old rubber boots and shoes—foreign	9 @ 9⅛
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	8¼@ 8½
Solid rubber wagon and carriage tires	9¼@ 9¾
White trimmed rubber	11 @11½
Heavy black rubber	4¾@ 5
Air brake hose	4¼@ 4¾
Garden hose	1¼@ 1⅜
Fire and large hose	2 @ 2¼
Matting	⅞@ 1

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK. Fine and Medium.	Coarse.	Total. 1912.	Total. 1911.	Total. 1910.
Stocks, January 1.....*tons*	290	42 =	332	211	207
Arrivals, January.....	1,714	667 =	2,381	1,352	2,040
Aggregating	2,004	709 =	2,713	1,563	2,247
Deliveries, January.....	1,744	664 =	2,408	1,321	2,015
Stocks, January 31.....	260	45 =	305	242	232

	PARA. 1912.	1911.	1910.	ENGLAND. 1912.	1911.	1910.
Stocks, January 1, *tons*	2,675	675	150	825	1,490	385
Arrivals, January.....	4,030	3,620	4,500	710	1,038	810
Aggregating	6,705	4,295	4,650	1,535	2,528	1,195
Deliveries, January.....	3,335	2,530	3,480	485	1,303	850
Stocks, January 31...	3,370	1,765	1,170	1,050	1,225	345

	1912.	1911.	1910.
World's visible supply, January 31....*tons*	6,372	4,582	4,083
Pará receipts, July 1 to January 31.....	18,665	17,020	19,470
Pará receipts of caucho, same dates.....	2,510	2,950	2,920
Afloat from Pará to United States, Jan. 31	397	465	1,160
Afloat from Pará to Europe, Jan. 31....	1,250	885	1,170

Rubber Stock at Para.

Stock for January 31 shows an increase caused by heavier arrivals.

January 31, 1911....*tons*	2,085	August 31, 1911.....*tons*	3,450
February 28.....	3,787	September 30.....	3,102
March 31.....	4,214	October 31.....	3,320
April 30.....	5,104	November 30.....	3,050
May 31.....	5,350	December 31.....	2,675
June 30.....	4,545	January 31, 1912.....	3,370
July 31.....	3,884		

Para.

R. O. AHLERS & Co. report [February 1]:

Market has been steady, but, after the big entries from Upriver during the last few days, the upward movement of prices stopped.

African Rubbers.

NEW YORK STOCKS (IN TONS.)

January 1, 1911.....	115	August 1, 1911.....	90
February 1.....	115	September 1.....	112
March 1.....	11	October 1.....	67
April 1.....	98	November 1.....	45
May 1.....	98	December 1.....	60
June 1.....	90	January 1, 1912	58
July 1, ...	90	February 1.....	150

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7.....	4/2¼	November 3.....	4/3
July 14.....	4/5½	November 10.....	4/4½
July 21.....	4/7	November 17.....	4/3
July 28.....	4/8	November 24.....	4/3½
August 4.....	4/7½	December 1.....	4/4¼
August 11.....	4/7½	December 8.....	4/5½
August 18.....	4/7¼	December 15.....	4/4½
August 25.....	4/10½	December 22.....	4/4
September 1.....	4/8½	December 29.....	4/3½
September 8.....	4/9	January 5.....	4/4½
September 15.....	5/	January 12.....	4/5½
September 22.....	4/10½	January 19.....	4/5½
September 29.....	4/8	January 26.....	4/8
October 6.....	4/7	February 2.....	4/7
October 13.....	4/5	February 9.....	4/6½
October 20.....	4/6½	February 16.....	4/6¾
October 27.....	4/4	February 23.....	4/7½

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weight in Pounds.*]

FEBRUARY 5.—By the steamer *Aidan*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	192,500	19,700	175,600	58,900=	446,700
New York Commercial Co.	87,300	22,200	31,500	22,200=	163,200
General Rubber Co.....	83,600	15,400	60,000	4,200=	163,200
Meyer & Brown.....	34,700	6,400	18,500	10,200=	69,800
De Lagotellerie & Co.....	15,000	5,000	30,400	.....=	50,400
Henderson & Korn.....	6,500	300	5,900	.....=	12,700
Hagemeyer & Brunn.....	400	.....	9,900	.....=	10,300
Total	420,000	69,000	331,800	95,500=	916,300

FEBRUARY 15.—By the steamer *Cuthbert*, from Manáos and Pará:

Arnold & Zeiss.....	310,300	62,700	196,800	178,800=	748,600
New York Commercial Co.	155,200	37,800	87,400	155,600=	436,000
General Rubber Co.....	127,900	20,300	34,100	700=	183,000
Meyer & Brown.....	66,800	10,800	18,200	17,500=	113,300
De Lagotellerie & Co.....	12,100	6,400	21,800	.....=	40,300
Hagemeyer & Brunn.....	12,500	1,100	8,600	.....=	22,200
G. Amsinck & Co.....	11,800	.....	6,600	.....=	18,400
Total	696,600	139,100	373,500	352,600=	1,561,800

FEBRUARY 23.—By the steamer *Javary*, from Pará:

General Rubber Co.....	.....	.....	54,500	.....=	54,500
De Lagotellerie & Co....	.....	.....	23,700	.....=	23,700
W. R. Grace Co.....	.....	.....	12,000	=	12,000
H. A. Astlet & Co.....	2,300	.....	1,200	4,800=	8,300
Total	2,300	.....	79,400	16,800=	98,500

FEBRUARY 26.—By the steamer *Clement*, from Manáos and Pará:

Arnold & Zeiss.....	443,400	173,200	349,500	65,000=	1,031,100
New York Commercial Co.	292,200	77,200	114,500	155,800=	639,700
General Rubber Co.....	382,300	62,100	101,600	20,900=	566,900
Meyer & Brown	44,400	6,400	9,100	.....=	59,900
Henderson & Korn.....	8,300	300	18,600	.....=	27,200
De Lagotellerie & Co....	.....	4,600	21,100	.....=	25,700
G. Amsinck & Co.....	7,500	400	5,000	8,000=	20,900
Total	1,178,100	324,200	619,400	249,700=	2,371,400

PARA RUBBER VIA EUROPE.

	POUNDS.	
JANUARY 25.—By the *President Lincoln*=Hamburg:		
N. Y. Commercial Co. (Fine)..	7,000	
N. Y. Commercial Co. (Coarse)	4,500	11,500
JANUARY 29.—By the *Laconia*=Liverpool:		
Robinson & Co. (Fine).....	11,500	
Raw Products Co. (Fine).....	11,000	
Arnold & Zeiss (Fine).....	13,500	
Raw Products Co. (Coarse)....	11,000	47,000
FEBRUARY 5.—By the *Arabic*=Liverpool:		
Robinson & Co. (Fine).....	2,500	
Raw Products Co. (Coarse).....	3,500	
General Rubber Co. (Caucho)..	22,500	28,500
FEBRUARY 5.—By the *Waldersee*=Hamburg:		
N. Y. Commercial Co. (Fine)..	9,000	
Ed. Maurer (Fine).....	8,000	17,000
FEBRUARY 10.—By the *Baltic*=Liverpool:		
N. Y. Commercial Co. (Fine)..	90,000	
General Rubber Co. (Caucho)..	9,000	99,000
FEBRUARY 13.—By the *Campania*=Liverpool:		
Arnold & Zeiss (Fine).....		560,000
FEBRUARY 14.—By the *Cymric*=Liverpool:		
N. Y. Commercial Co. (Fine).....		22,500
FEBRUARY 15.—By the *President Grant*=Hamburg:		
Meyer & Brown (Fine).....	13,000	
N. Y. Commercial Co. (Fine)..	11,500	
Henderson & Korn (Caucho)..	34,000	58,500
FEBRUARY 19.—By the *Carmania*=Liverpool:		
N. Y. Commercial Co. (Fine)..	50,000	
Robinson & Co. (Fine).....	34,000	
Muller Schall & Co. (Coarse)...	3,000	87,000
FEBRUARY 24.—By the *Lusitania*=Liverpool:		
N. Y. Commercial Co. (Fine)		56,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.] POUNDS.

JANUARY 25.—By the *Proteus*=New Orleans:		
Manhattan Rubber Mfg. Co....	11,000	
Meyer & Brown.....	5,000	
G. Amsinck & Co.....	2,000	
Robinson & Co.	1,500	19,500
JANUARY 27.—By the *El Rio*=Galveston:		
Continental-Mexican Rubber Co.	*45,000	
Charles T. Wilson.....	*7,000	*52,000
JANUARY 27.—By the *Monterey*=Frontera:		
H. Marquardt & Co.....	6,000	
Harburger & Stack	4,000	
Maitland, Coppell & Co.....	2,000	
Laurence Johnson & Co.....	2,000	
E. Steiger & Co.....	1,500	
Mecke & Co.	1,000	16,500
JANUARY 27.—By the *Panama*=Colon:		
G. Amsinck & Co.....	2,500	
Gillespie Bros. & Co.....	2,000	
Isaac Brandon & Bros.	1,000	5,500
JANUARY 29.—By the *El Oriente*=Galveston:		
Continental-Mexican Rubber Co.	*40,000	
Charles T. Wilson.....	*10,000	*50,000
JANUARY 29.—By the *Laconia*=Liverpool:		
Henderson & Korn		11,500
JANUARY 31.—By the *Camaguey*=Tampico:		
Ed. Maurer *115,000		
For Europe *110,000		*225,000
FEBRUARY 2.—By the *Creole*=New Orleans:		
A. N. Rotholz	5,000	
Robinson & Co.	5,000	
G. Amsinck & Co.....	5,000	
Eggers & Heinlein	2,500	17,500
FEBRUARY 2.—By the *Mexico*=Frontera:		
E. Steiger & Co.	5,500	
E. Nelson Tibbals & Co.....	5,500	
Harburger & Stack	5,000	
Laurence Johnson & Co.....	4,500	

J. W. Wilson & Co.	4,500	
H. Marquardt & Co.	2,500	
Lawrence Import Co.	1,500	
American Trading Co.	1,000	
General Export Co.	1,000	
G. Amsinck & Co.	1,000	32,000

FEBRUARY 2.—By the *New York*=London:

Arnold & Zeiss		40,000

FEBRUARY 3.—By the *Antilla*=Tampico:

Continental-Mexican Rubber Co.	*80,000	
Ed. Maurer	*70,000	
New York Commercial Co.	*34,000	
Arnold & Zeiss	*33,000	
For Europe	*80,000	*297,000

FEBRUARY 5.—By the *Allianca*=Colon:

Isaac Brandon & Bros.	19,000	
G. Amsinck & Co.	11,500	
E. Nelson Tibbals & Co.	4,000	
Laurence Johnson & Co.	3,000	
Piza, Nephews & Co.	3,000	
American Trading Co.	1,000	
Wessels, Kulenkampff & Co.	1,000	42,500

FEBRUARY 5.—By the *Vasari*=Bahia:

J. H. Rossbach & Bros.	50,000	
Adolph Hirsch & Co.	135,000	185,000

FEBRUARY 5.—By the *Waldersee*=Hamburg:

George A. Alden & Co.	20,000	
Robert Badenhop	5,000	
Adolph Hirsch & Co.	22,500	47,500

FEBRUARY 7.—By the *El Occidente*=Galveston:

Continental-Mexico Rubber Co.	*90,000	
Charles T. Wilson	*15,000	*105,000

FEBRUARY 7.—By the *Prinz Eitel Friedrich*=Colon:

G. Amsinck & Co.	7,000	
Mecke & Co.	2,000	
Pablo, Calvert & Co.	1,000	
J. Sambrada & Co.	1,000	
Gillespie Bros. & Co.	1,000	
Isaac Brandon & Bros.	1,000	13,000

FEBRUARY 7.—By the *Minneapolis*=London:

George A. Alden & Co.		45,000

FEBRUARY 8.—By the *Indian Prince*=Bahia:

Adolph Hirsch & Co.		17,000

FEBRUARY 10.—By the *Esperanza*=Vera Cruz:

H. Marquardt & Co.	3,500	
Maldonado & Co.	1,500	
Harburger & Stack	1,500	6,500

FEBRUARY 10.—By the *Colon*=Colon:

G. Amsinck & Co.	11,000	
Dumarest Bros. & Co.	5,000	
Wessels, Kulenkampff & Co.	4,000	
Gillespie Bros. & Co.	2,000	
Pablo, Calvert & Co.	2,000	
J. Sambrada & Co.	1,000	25,000

FEBRUARY 13.—By the *Santiago*=Tampico:

Continental-Mexican Rubber Co.	*40,000	
Ed. Maurer	*34,000	
New York Commercial Co.	*33,000	
Arnold & Zeiss	*25,000	*132,000

FEBRUARY 14.—By the *Oruba*=Columbia:

A. M. Capen's Sons	4,500	
Mecke & Co.	3,500	
A. Held	3,500	
G. Amsinck & Co.	2,500	
Caballero & Blanco	2,000	
J. Sambrada & Co.	1,500	
Maitland, Coppell & Co.	1,000	18,500

FEBRUARY 14.—By the *Prinz Sigismund*=Colon:

G. Amsinck & Co.	18,000	
Laurence Johnson & Co.	2,000	
Gillespie Bros. & Co.	1,000	
Isaac Brandon & Bros.	1,000	
Wessels, Kulenkampff & Co.	1,000	23,000

FEBRUARY 15.—By the *President Grant*=Hamburg:

Ed. Maurer		*5,500

FEBRUARY 15.—By the *Antilles*=New Orleans:

G. Amsinck & Co.	4,500	
Robinson & Co.	3,000	
Manhattan Rubber Co.	4,500	
Meyer & Brown	2,500	
Eggers & Heinlein	2,500	16,500

FEBRUARY 16.—By the *El Rio*=Galveston:

Continental-Mexican Rubber Co.	*85,000	
Charles T. Wilson	*11,000	*96,000

FEBRUARY 17.—By the *Morro Castle*=Frontera:

W. L. Wadleigh	4,500	
Laurence Johnson & Co.	4,000	
George A. Alden & Co.	3,500	
Harburger & Stack	2,500	
P. V. Rubio & Co.	2,500	
General Export Comm. Co.	2,500	
Herman Kluge	1,500	
H. Marquardt & Co.	1,000	22,000

FEBRUARY 20.—By the *Allemannia*=Columbia:

Maitland, Coppell & Co.	11,500	
A. Held	4,500	
Schutte Bunemann & Co.	3,000	
Caballero & Blanco	1,000	20,000

FEBRUARY 20.—By the *Sildra*=Bahia:

Adolph Hirsch & Co.		95,000

FEBRUARY 21.—By the *Prinz August Wilhelm*=Colon:

E. Nelson Tibbals & Co.	9,000	
Isaac Brandon & Bros.	7,000	
G. Amsinck & Co.	1,500	
A. J. Capen's Sons	1,500	
Gillespie Bros. & Co.	1,000	20,000

FEBRUARY 23.—By the *El Sol*=Galveston:

Continental-Mexican Rubber Co.		*115,000

FEBRUARY 23.—By the *Panama*=Colon:

Pablo, Calvert & Co.	2,000	
Dumarest Bros. & Co.	1,000	
Roldau & Van Sickle	1,000	
American Trading Co.	1,000	
Isaac Brandon & Bros.	1,000	6,000

FEBRUARY 23.—By the *Guantanamo*=Tampico:

N. Y. Commercial Co.	*200,000	
Ed. Maurer	*180,000	
Continental-Mexican Rubber Co.	*155,000	
Arnold & Zeiss	*34,000	
For Europe	*100,000	*669,000

FEBRUARY 23.—By the *Byron*=Bahia:

J. H. Rossbach & Bros.	35,000	
Adolph Hirsch & Co.	30,000	65,000

FEBRUARY 24.—By the *Monterey*=Frontera:

Harburger & Stack	3,000	
Laurence Johnson & Co.	3,000	
E. Nelson Tibbals & Co.	2,500	
E. Steiger & Co.	2,000	
Herman Kluge	1,000	11,500

AFRICAN.

	Pounds.	
JANUARY 24.—By the *Kroonland*=Antwerp:		
Meyer & Brown	11,500	
Ed. Maurer	9,000	
Robert Badenhop	7,000	27,500
JANUARY 25.—By the *President Lincoln*=Hamburg:		
Arnold & Zeiss	50,000	
George A. Alden & Co.	55,000	
Ed. Maurer	11,500	
James T. Johnstone	11,000	
Robert Badenhop	3,500	
Raw Products Co.	2,500	133,500
JANUARY 25.—By the *Philadelphia*=London:		
Arnold & Zeiss	20,000	
General Rubber Co.	10,000	
George A. Alden & Co.	10,000	40,000
JANUARY 29.—By the *Rochambeau*=Havre:		
Ed. Maurer	60,000	
In Transit	5,500	65,500
JANUARY 29.—By the *Bayern*=Hamburg:		
Wallace L. Gough Co.	22,500	
George A. Alden & Co.	11,000	
Meyer & Brown	9,000	
Robert Badenhop	7,000	49,500
JANUARY 29.—By the *Laconia*=Liverpool:		
Ed. Maurer	56,000	
General Rubber Co.	13,500	
Arnold & Zeiss	13,500	
Henderson & Korn	11,500	
James T. Johnstone	4,500	99,000
JANUARY 20.—By the *Roma*=Lisbon:		
General Rubber Co.	45,000	
Arnold & Zeiss	22,500	
Wallace L. Gough Co.	18,000	
Robert Badenhop	10,000	95,500
FEBRUARY 1.—By the *Finland*=Antwerp:		
Meyer & Brown	10,000	
Arnold & Zeiss	7,000	
Raw Products Co.	3,000	
Robinson & Co.	2,500	22,500
FEBRUARY 5.—By the *Arabic*=Liverpool:		
Ed. Maurer	22,500	
General Rubber Co.	22,500	
Robinson & Co.	11,500	
Meyer & Brown	7,000	63,500
FEBRUARY 5.—By the *Waldersee*=Hamburg:		
George A. Alden & Co.	95,000	
Arnold & Zeiss	25,000	
Meyer & Brown	15,000	
General Rubber Co.	11,500	
Rubber Trading Co.	10,000	
Wallace L. Gough Co.	7,000	
Robert Badenhop	4,500	168,000
FEBRUARY 7.—By the *Vaderland*=Antwerp:		
George A. Alden & Co.	56,000	
Arnold & Zeiss	20,000	
Meyer & Brown	15,000	
Wallace L. Gough Co.	22,500	
L. Blitz	9,000	
Henderson & Korn	9,000	
Rubber Trading Co.	5,000	
William H. Stiles	7,000	143,500
FEBRUARY 7.—By the *Niagara*=Havre:		
Arnold & Zeiss	150,000	
George A. Alden & Co.	30,000	180,000
FEBRUARY 7.—By the *Kaiserin Auguste Victoria*=Hamburg:		
Arnold & Zeiss	38,000	
George A. Alden & Co.	25,000	
Meyer & Brown	34,000	
Henderson & Korn	15,000	
Robert Badenhop	11,000	
Ed. Maurer	10,000	
Wallace L. Gough Co.	9,000	
James T. Johnstone	5,000	
General Rubber Co.	4,500	151,500
FEBRUARY 8.—By the *Oceanic*=Havre:		
George A. Alden & Co.	33,500	
General Rubber Co.	11,500	45,000
FEBRUARY 10.—By the *Baltic*=Liverpool:		
George A. Alden & Co.	34,000	
Ed. Maurer	22,500	
James T. Johnstone	22,500	
Robinson & Co.	11,500	
General Rubber Co.	5,500	
Wallace L. Gough Co.	2,000	98,000
FEBRUARY 13.—By the *Campania*=Liverpool:		
Arnold & Zeiss		98,000
FEBRUARY 13.—By the *Zeeland*=Antwerp:		
Arnold & Zeiss	27,000	
Meyer & Brown	9,000	
Raw Products Co.	3,500	
In Transit	26,000	65,500
FEBRUARY 13.—By the *St. Louis*=London:		
General Rubber Co.	9,000	
George A. Alden & Co.	9,000	
Arnold & Zeiss	5,000	
Wallace L. Gough	20,000	43,000
FEBRUARY 14.—By the *Cymric*=Liverpool:		
George A. Alden & Co.	35,000	
Ed. Maurer	22,500	
Arnold & Zeiss	22,500	
Robinson & Co.	7,000	87,000
FEBRUARY 15.—By the *President Grant*=Hamburg:		
George A. Alden & Co.	140,000	
General Rubber Co.	9,000	
Meyer & Brown	7,000	
Rubber Trading Co.	7,000	
Wallace L. Gough Co.	7,000	
Robert Badenhop	5,500	175,500
FEBRUARY 19.—By the *Lapland*=Antwerp:		
Meyer & Brown	11,500	
L. Blitz	4,500	16,000
FEBRUARY 19.—By the *Carmania*=Liverpool:		
George A. Alden & Co.	45,000	
Ed. Maurer	11,500	
Robinson & Co.	7,000	
James T. Johnstone	2,500	66,000
FEBRUARY 20.—By the *Chicago*=Havre:		
Ed. Maurer		11,000
FEBRUARY 20.—By the *Minnehaha*=London:		
General Rubber Co.	50,000	
Wallace L. Gough Co.	13,500	
George A. Alden & Co.	11,000	
Robinson & Co.	11,500	86,000
FEBRUARY 23.—By the *St. Paul*=London:		
Ed. Maurer		30,000
FEBRUARY 23.—By the *St. Laurent*=Bordeaux:		
Arnold & Zeiss	25,000	
Meyer & Brown	27,000	
Robert Badenhop	5,500	57,500
FEBRUARY 24.—By the *Lusitania*=Liverpool:		
Arnold & Zeiss		45,000

EAST INDIAN.

	Pounds.	
JANUARY 24.—By the *Kroonland*=Antwerp:		
Meyer & Brown		*17,000
JANUARY 25.—By the *Braunfels*=Colombo:		
Meyer & Brown		*40,000
Muller Schall & Co.		*11,500 *51,500
JANUARY 25.—By the *Philadelphia*=London:		
New York Commercial Co.	*19,000	
Arnold & Zeiss	*13,000	
Ed. Maurer	*4,000	*36,000
JANUARY 25.—By the *Royal Prince*=Colombo:		
Meyer & Brown	*70,000	
New York Commercial Co.	*29,000	*99,000

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JANUARY 26.—By the *Vandalia*=Singapore:

Ed. Maurer	*40,000	
L. Littlejohn Co.	*20,000	
Wallace L. Gough Co.	*9,000	
New York Commercial Co.	*9,000	
J. W. Bird	22,500	
L. Littlejohn Co.	11,500	
Ed. Maurer	17,000	129,000

JANUARY 29.—By the *Imkenturm*=Colombo:

Meyer & Brown	*22,500	
New York Commercial Co.	*13,500	*36,000

JANUARY 29.—By the *Laconia*=Liverpool:

Ed. Maurer	*7,000

JANUARY 29.—By the *Steinturm*=Colombo:

Robert Badenhop	*34,000	
Meyer & Brown	*15,000	
New York Commercial Co.	*15,000	*64,000

FEBRUARY 1.—By the *Mesaba*=London:

General Rubber Co.	*155,000	
Meyer & Brown	9,000	
Ed. Maurer	*5,000	
General Rubber Co.	11,500	
Robinson & Co.	11,000	191,500

FEBRUARY 1.—By the *Finland*=Antwerp:

Meyer & Brown	*15,000	
Arnold & Zeiss	*11,000	
Raw Products Co.	*3,500	*29,500

FEBRUARY 2.—By the *New York*=London:

Arnold & Zeiss	*155,000

FEBRUARY 7.—By the *Vaderland*=Antwerp:

Meyer & Brown	*70,000	
Rubber Trading Co.	*4,500	
Arnold & Zeiss	*3,500	*78,000

FEBRUARY 7.—By the *Kaiserin Auguste Victoria*=Hamburg:

Ed. Maurer	*13,000

FEBRUARY 7.—By the *Minneapolis*=London:

Arnold & Zeiss	*125,000	
New York Commercial Co.	*95,000	
General Rubber Co.	*13,500	
James T. Johnstone	*9,000	
Meyer & Brown	*7,000	
Henderson & Korn	*5,000	
Robinson & Co.	*4,500	
In Transit	*15,000	
Arnold & Zeiss	45,000	*319,000

FEBRUARY 8.—By the *Oceanic*=London:

New York Commercial Co.	*50,000	
Arnold & Zeiss	*25,000	
James T. Johnstone	*15,000	
In Transit	*13,500	*103,500

FEBRUARY 10.—By the *Pagenturm*=Colombo:

Meyer & Brown	*90,000	
New York Commercial Co.	*35,000	
Robert Badenhop	*40,000	*165,000

FEBRUARY 13.—By the *Zeeland*=Antwerp:

New York Commercial Co.	*145,000	
Meyer & Brown	*40,000	
Robert Badenhop	*4,500	*189,500

FEBRUARY 14.—By the *Minnetonka*=London:

Robinson & Co.	*22,500	
Ed. Maurer	*17,500	
Wallace L. Gough Co.	*9,000	*49,000

FEBRUARY 14.—By the *Olympia*=London:

Arnold & Zeiss	*45,000	
Ed. Maurer	*25,000	
New York Commercial Co.	*15,000	
Meyer & Brown	*15,000	
Wallace L. Gough Co.	*13,500	*113,500

FEBRUARY 15.—By the *President Grant*=Hamburg:

Meyer & Brown	*7,000	
Wallace L. Gough Co.	*7,000	*14,000

FEBRUARY 19.—By the *Lapland*=Antwerp:

Meyer & Brown	*30,000

FEBRUARY 19.—By the *Indramayo*=Singapore:

Ed. Maurer	*25,000	
L. Littlejohn & Co.	*8,000	
New York Commercial Co.	*4,500	
A. W. Brunn	*3,500	
Arnold & Zeiss	*30,000	
J. W. Bird	15,000	86,000

FEBRUARY 20.—By the *Minnehaha*=London:

New York Commercial Co.	*135,000	
Arnold & Zeiss	*70,000	
Robinson & Co.	*22,500	
James T. Johnstone	*22,500	
Henderson & Korn	*15,000	
Ed. Maurer	*15,000	
Wallace L. Gough Co.	*15,000	*295,000

FEBRUARY 23.—By the *St. Paul*=London:

Arnold & Zeiss	*20,000	
New York Commercial Co.	*11,000	
In Transit	*35,000	*66,000

GUTTA-JELUTONG.

POUNDS.

JANUARY 26.—By the *Vandalia*=Singapore:

Winter & Smillie	125,000	
Wallace L. Gough Co.	225,000	
Arnold & Zeiss	110,000	
Haebler & Co.	155,000	
L. Littlejohn & Co.	450,000	1,065,000

FEBRUARY 19.—By the *Indramayo*=Singapore:

L. Littlejohn & Co.	325,000	
Haebler & Co.	225,000	
Wallace L. Gough Co.	200,000	
Arnold & Zeiss	55,000	
George A. Alden & Co.	45,000	850,000

GUTTA-PERCHA.

POUNDS.

JANUARY 25.—By the *President Lincoln*=Hamburg:

Robert Soltau & Co.	11,500

JANUARY 26.—By the *Vandalia*=Singapore:

L. Littlejohn & Co.	45,000

FEBRUARY 19.—By the *Indramayo*=Singapore:

Haebler & Co.	45,000

BALATA.

POUNDS.

JANUARY 25.—By the *President Lincoln*=Hamburg:

Robert Badenhop	13,500

JANUARY 29.—By the *Navarre*=Trinidad:

Ed. Maurer	11,000	
Bartling, De Leon & Co.	3,500	14,500

JANUARY 31.—By the *Marowijne*=Trinidad:

G. Amsinck & Co.	5,500	
George A. Alden & Co.	1,000	6,500

FEBRUARY 7.—By the *Coppername*=Trinidad:

G. Amsinck & Co.	3,500	
Bartling, De Leon & Co.	2,500	
Frame & Co.	1,000	7,000

FEBRUARY 13.—By the *St. Louis*=London:

Wallace L. Gough	7,000

FEBRUARY 15.—By the *President Grant*=Hamburg:

George A. Alden & Co.	11,000

FEBRUARY 20.—By the *Saramaca*=Demerara:

Schutte Bunemann & Co.	2,500	
Middleton & Co.	2,000	
Bartling, De Leon & Co.	2,000	
Ed. Maurer	1,000	7,500

BOSTON ARRIVALS.

POUNDS.

JANUARY 1.—By the *Bethania*=Hamburg:

George A. Alden & Co. (African)	5,000

JANUARY 18.—By the *Erroll*=Singapore:

State Rubber Co. (Ceylon)	34,000	
L. Littlejohn & Co. (Jelutong)	340,000	374,000

JANUARY 21.—By the *Seneca*=Singapore:

Haebler & Co. (Gutta-Percha)	70,000	
State Rubber Co. (Jelutong)	110,000	
L. Littlejohn & Co. (Jelutong)	760,000	940,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY.

Imports.	Pounds.	Value.
India-rubber	11,116,008	$8,937,418
Balata	155,030	89,634
Guayule	893,748	403,451
Gutta-percha	68,660	4,927
Gutta-jelutong (Pontianak)	2,139,988	92,256
Total	14,373,434	$9,527,686
Exports.		
India-rubber	138,579	126,451
Balata	.....	.....
Guayule	.....	.....
Gutta-percha	.....	.....
Reclaimed rubber	216,906	29,394
Rubber scrap, imported	1,190,861	95,963
Rubber scrap, exported	447,245	68,845

EXPORTS OF INDIA-RUBBER FROM PARA FOR JANUARY, 1912 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	129,699	16,596	154,673	14,302	315,270	216,058	17,730	61,800	43,329	338,917	654,187
Ad. H. Alden, Ltd.	31,125	5,742	36,369	17,560	90,796	110,629	23,116	50,225	6,240	190,210	281,006
Gordon & Co.	65,026	6,284	48,603	9,043	128,956	40,971	4,659	22,889	14,871	83,390	212,346
Suárez, Hermanos & Co., Ltd.	.....	.....	.....	.....	.....	151,406	1,344	3,545	45,947	202,242	202,242
De Lagotellerie & Co.	13,600	4,930	21,780	.....	40,310	47,600	686	23,750	.....	72,036	112,346
Pires, Teixeira & Co.	7,310	340	4,290	.....	11,940	4,760	340	3,960	.....	9,060	21,000
R. O. Ahlers & Co.	.....	.....	.....	.....	.....	7,747	.....	1,229	7,242	16,218	16,218
Nunes, Sobrinho & Co.	170	.....	4,950	.....	5,120	5,650	170	.....	.....	5,820	10,940
A. de La Rivière Co.	.....	.....	.....	.....	.....	.....	.....	5,940	.....	5,940	5,940
Sundries	.....	.....	.....	.....	.....	.....	.....	1,980	.....	1,980	1,980
Itacoatiara, direct	.....	.....	.....	.....	.....	7,090	713	5,079	1,142	14,024	14,024
	246,930	33,892	270,665	40,905	592,392	591,911	48,758	180,397	118,771	939,837	1,532,229
Manaos, direct	505,387	79,067	167,250	24,021	775,725	636,834	101,651	95,223	186,511	1,020,219	1,795,944
Iquitos, direct	.....	.....	.....	.....	.....	153,860	30,138	63,633	146,491	394,122	394,122
Total	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178	3,722,295

MANAOS EXPORTS OF INDIA-RUBBER FOR JANUARY, 1912 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Ohliger & Co.	262,272	23,552	114,506	83,757	484,037	441,552	60,799	39,069	93,400	634,820	1,118,907
Adelbert H. Alden, Ltd.	272,785	56,259	55,725	39,255	424,024	67,351	15,858	20,351	23,042	126,602	550,626
Gordon & Co.	158,940	33,556	53,788	9,265	255,549	79,031	16,165	6,920	52,060	154,176	409,725
De Lagotellerie & Co.	.....	.....	.....	.....	.....	10,977	4,693	6,234	3,582	25,486	25,436
Sundries	.....	.....	.....	.....	.....	1,265	523	9,257	722	11,767	11,767
	693,997	113,367	224,019	132,277	1,163,660	600.176	98.038	81,831	172,806	952,851	2,116,511
Iquitos, direct	.....	.....	.....	.....	.....	153,860	30,138	63,633	146,491	394,122	394,122
Total	693,997	113,367	224,019	132,277	1,163,660	754,036	128,176	145,464	319,297	1,346,973	2,510,633

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TEXAS TO SELL ITS GUAYULE SHRUB.

THE State of Texas intends to sell all the guayule shrub now remaining on the State lands. Bids will be received by the State Lands Commissioner up to March 14. Texas made its first sale of guayule shrub five years ago, receiving $61,000. The shrub bought at that time has since been worked at the factory at Marathon and the rubber extracted therefrom marketed chiefly in New York.

Men who have been over the State lands of Texas carefully state that there are thousands of acres yet untouched on which guayule is growing in very large quantities.

Liverpool.

WILLIAM WRIGHT & Co. REPORT [FEBRUARY 1]:

Fine Pará.—The market has been active at, generally speaking, advancing prices, closing about 3/16*d.* per pound dearer than last month. America still continues to buy actively, both in Brazil and on this market, which makes holders chary for offering far ahead. Trade demand here has been moderate during the month, as the deliveries show. The undertone of the market is firm, and present appearances point to moderate fluctuation. Closing value: Hard, fine, 4*s.* 7¼*d.* [$1.12]; Island, 4*s.* 7½*d.* [$1.125].

Antwerp.

RUBBER STATISTICS FOR JANUARY.

DETAILS.	1912.	1911.	1910.	1909.	1908.
Stocks, January 1..*kilos*	674,738	588,212	541,512	595,735	1,006,894
Arrivals in January....	321,433	549,956	261,867	283,955	547,968
Congo sorts	226,248	403,421	202,547	186,189	504,451
Other sorts	95,185	146,535	59,320	97,766	43,517
Aggregating	996,171	1,138,168	803,379	879,690	1,554,862
Sales in January.....	410,115	492,749	321,217	281,913	294,853
Stocks, January 31.....	586,056	645,419	482,162	597,777	1,260,009
Arrivals since Jan. 1...	321,433	549,956	261,867	283,955	547,968
Congo sorts	226,248	403,421	202,547	186,189	504,451
Other sorts	95,185	146,535	59,320	97,766	43,517
Sales since Jan. 1.....	410,115	492,749	321,217	281,913	294,853

RUBBER ARRIVALS FROM THE CONGO.

FEBRUARY 8.—By the steamer *Elizabethville:*

Bunge & Co.....	(Société Générale Africaine) *kilos*	23,960	
do	(Chemins de fer Grand Lacs)	1,800	
do	(Alberta)	1,100	
do	(Comptoir Commercial Congolais)	5,800	
Société Coloniale Anversoise.....	(Haut Congo)	580	
L. & W. Van de Velde.....	(Cie de Kasai)	52,500	
do	(Comfina)	25,000	
do		3,000	
Charles Dethier	(American Congo Co.)	5,600	
Willaert Frères		2,000	
Société Generale de Commerce.....	(Alimaienne)	1,750	
Congo Trading Co.....		6,000	
Osterrieth & Co.....		4,500	
Cassart & Henrion.....		3,500	138,530

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to December 31, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain.....*pounds*	1,572,119	3,651,424
To United States.....	1,610,395	1,890,796
To Belgium	76,827	807,597
To Australia	5,858	61,444
To Japan	4,951	57,513
To Germany	16,956	55,829
To Canada	7,476	18,871
To Holland	....	12,893
To Italy	1,909	8,460
To Austria	1,041	6,648
To Straits Settlements.....	....	3,216
To India	....	196
To France	....	117
To Africa	....	35
Total	3,298,652	6,575,039

[Same period 1909—1,372,616; same 1908—831,905.]

[From January 1 to January 22, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912
To Great Britain.....*pounds*	61,418	135,606
To Belgium	....	12,402
To Germany	....	3,617
Total	61,418	151,625

[Same period 1910—128,597; same 1909—47,419.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

FROM—	1909.	1910.	1911.
Singapore (to Dec. 31) *pounds.*	2,412,617	3,764,877	6,780,835
Penang (to Dec. 24).....	2,088,133	2,454,907	4,978,879
Port Swettenham (to Dec. 31).	2,960,320	8,349,523	12,109,788
Total	7,461,070	14,569,307	23,869,502